AFIT/GLM/LSM/92S-7

A QUALITATIVE STUDY OF THE EUROPEAN TRUCKING INDUSTRY AND LOGISTICS STRATEGIES USING THE UNITED STATES MOTOR CARRIER INDUSTRY AS A GUIDE

THESIS

David W. Butler
Captain, USAF

Andrew P. Wilhelm
Captain, USAF

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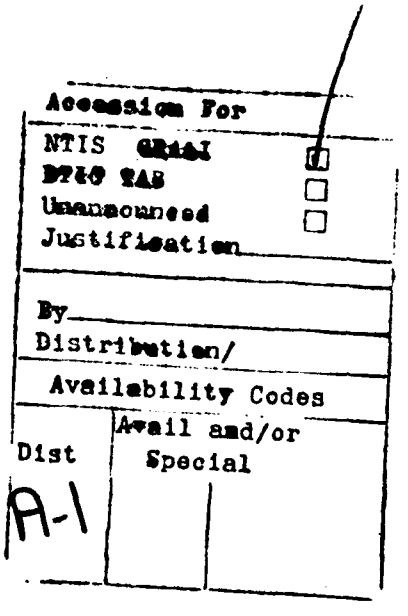

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THESIS

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David W. Butler, B.S.
Captain, USAF

Andrew P. Wilhelm, B.A.
Captain, USAF

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David W. Butler
Andrew P. Wilhelm

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Abstract

This study investigated the United States motor carrier industry experience with deregulation to afford a comparison with the European Community's (EC) expanded trade liberalization and harmonization program known as EC '92.

Historical backgrounds were provided for the U.S. and European trucking industries highlighting significant similarities between the two. Relevant studies in the fields of trucking deregulation and logistics were reviewed.

Specifically, route control, price setting, efficiencies, and market share and concentration were analyzed. Logistics strategies arising from trucking deregulation were also examined.

The findings of this research indicate definite similarities between the U.S. and EC motor carrier industries. Both were heavily regulated originally to protect government subsidized railroads. Route control and quotas limited entry into the market. Price setting resulted in inflated prices. Inefficiency was caused by haulage restrictions and documentation requirements. Market concentration was stable due to lack of competition.

Deregulation experience in the U.S. trucking industry was used for extrapolation in Europe. Lifting restrictions on quotas will result in heightened competition. Prices

will fall as shippers exercise greater negotiating power. Eliminating restrictions on haulage will vastly improve efficiency. An industry shakeup will occur before market share and concentration stabilizes.

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I. Introduction

General Issue

The European Community (EC) is an economic union of twelve European countries. Its goal is the elimination of tariffs on commodity trade between EC-member states. The EC is made up of Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, and the United Kingdom.

Although possessing a substantial economic base, the EC has an inefficient economy which has trailed those of the United States and Japan (Magee, 1989:78). One reason for the poor economic performance in the EC is the fragmented market. The EC is not one market, but it is instead a collection of twelve separate economies. A myriad of rules, regulations, and customs exist in this fragmented market of individual countries (Miller, 1990:ix).

The Single European Act of 1987 has accelerated the transformation the twelve member nations of the EC into one economic entity. In 1992, the EC will principally change

the competitive and regulatory atmosphere in Europe. The result will be a single market with a combined gross domestic product surpassing Japan and nearly that of the United States (Miller, 1990:ix).

One major area of emphasis of the Single European Act designed to assist in creating the single market is establishing a deregulated motor carrier industry. The Single European Act set 31 December 1992, as the deadline for achieving a "free transport market" and eliminating non-tariff barriers in goods and services (Lieb, 1991b:56). The changes are expected to have significant impact on companies doing business or hoping to do business in Europe. According to *Transportation and Distribution* magazine:

> Even if you are not now involved in European markets, the picture could change almost overnight. Competition is less and less sensitive to national borders. You may find yourself involved in a global distribution before you know it. (Europe 1992, 1990:17)

The change to a single integrated market will open the national borders within the European market for transport. Policy reform in Europe concerning transportation areas has developed into one of the most important issues of the Single {European} Market Act (Trunick, 1990:24). "Of the approximately 300 directives identified by the Commission to accomplish this integration, about half have already been approved, and many affect transportation" (Cooper and others, 1990:33). These changes are anticipated to directly

impact transportation functions, logistics operations, and even military logistics strategies.

How will the changes in the EC trucking industry regulation affect the logistics environment within Europe?

Specific Problem

According to Richard Sousane of the United States Department of Commerce, currently the trucking industry is one of the most tightly regulated businesses in the EC (Sousane, undated:8). With deregulation scheduled to take place as envisioned by the Single Market Act, many aspects of the EC motor carrier industry will experience drastic change. At a recent address to the Council of Logistics Management (1991 Annual Conference), Stephan Byrne briefed as the EC integrates into a single free market, the changes in the logistics environment will be similar to those experienced in the United States during deregulation (S. Byrne, 1991).

Therefore, how well can changes in EC trucking and logistics strategies be predicted based on documented changes in United States since deregulation?

Investigative Questions

To determine the effect regulation and deregulation have on the trucking industry, the following investigative questions are addressed within this research study:

1. What key changes have taken place in the United States trucking industry due to deregulation?

2. What regulatory changes have taken place in the EC motor carrier industry in preparation for EC '92?

3. What type of infrastructure changes must occur to support the EC trucking industry under EC '92?

4. How were logistics strategies affected by the deregulation of the U.S. trucking industry?

5. How will logistics strategies be affected by the deregulation of the EC-member nations' trucking industries?

6. What comparisons/contrasts can be made between the EC and the United States' motor carrier industries before and after deregulation?

Scope

This research focused on the motor carrier portion of the transportation industry. Although rail, water, and air modes of transportation will also experience drastic changes during implementation of EC '92, they were excluded from this study except where necessary for comparison. The other modes of transportation were not covered because of the immense number of motor carriers impacted by deregulation compared with the fewer number of railroads and airlines companies.

> EC estimates are that of all freight traffic movements within the EC and with other nations, about 87 percent are truck movements, 8 percent rail, and 5 percent water, with air transport accounting for a negligible proportion of these movements. (Cooper and others, 1990:33)

Concentration is placed on a qualitative analysis of literature for most of the thesis and certain limited

quantitative aspects of the trucking industry which are significant. This thesis will also discuss logistics strategies that evolved out of, or as a logical extension of, deregulation of the trucking industry.

Overview

Chapter II provides a background of the United States trucking environment. The period of regulation of United States trucking industry and the structure of the industry are introduced. Chapter II also provides a background of the European Community from its beginning through the Single Market Act.

Other studies relating to the effects of deregulation on logistics in general and specifically to the United States and European trucking industries were examined and the findings summarized in Chapter II. These studies help indicate the direction of current and past analyses and contributed to scoping the topic of this research.

Chapter III contains the methodology used to research and answer the investigative questions. An introduction to the major items of emphasis is provided along with justification for using qualitative material to evaluate these aspects of the motor carrier industry. Limitations of the study, such as heavy reliance on secondary data sources, are then mentioned.

Chapter IV synthesizes the views expressed in the literature reviewed concerning the impact of deregulation on

the United States' trucking industry. Specifically, the areas of route control, pricing, trucking efficiencies, market share, and industry concentration are addressed. Furthermore, predominate changes in logistic strategies evolving from deregulation, or present at the time of deregulation, are discussed. These views, in addition to accumulated quantitative data concerning results of U.S. deregulation, provide the basis for our interpretation of the impact of deregulation on the European motor carrier industry.

Chapter V provides the reader with the major transportation issues facing the implementation of the Single Market Act in preparation for EC '92. The areas of route control, pricing, market share, and industry concentration are addressed, with the efficiency of the EC trucking industry interspersed within these areas. Comparisons to the United States experience will be highlighted. Predicted changes in logistics strategies are provided for analysis. Additionally, recommended or actual infrastructure changes brought about by EC '92 are discussed.

Chapter VI summarizes the findings of Chapters IV and V and presents the conclusions drawn. This chapter reemphasizes the similarities and differences between the United States and European motor carrier industries operating in a deregulated environment. This comparison will allow the reader to observe and understand significant

trends and to make assumptions about the deregulation of the motor carrier industry due to EC '92. Recommendations for replication, follow-up, or revised studies are also provided.

II. Literature Review

Review of the United States Motor Carrier Industry

Background. The powerful influence of government regulation and then deregulation is reflected in every facet of the U.S. trucking industry. Regulation directly impacted the trucking industry's selection of routes, price setting methods, and indirectly affected efficiency. This influence over routes, rates, and efficiency directly impacted logistics strategies. These government-imposed regulatory standards forced the industry to follow stringent rules and also made the trucking industry an exclusive club averse to new members.

The Motor Carrier Act of 1935 began the regulatory era of the trucking industry. According to Stephen G. Breyer in his book, Regulation and Its Reform, there are three reasons why the trucking industry became regulated. The primary reason was to placate the railroad industry, which feared the trucking industry would take over their most profitable routes. The railroads could not fight the trucking industry, because government regulation prevented the railroads from lowering rates and being competitive. Since the motor carrier industry was the biggest competitor to the rail industry, railroad leaders felt it was unjust to regulate their commerce while leaving the trucking industry unregulated. Second, there was concern that if the truckers remained unregulated they would force the railroads into

bankruptcy. The Interstate Commerce Commission (ICC) concluded if the railroad industry was deregulated it would use its wealth to force the trucking industry out of business. To prevent both industries from destroying each other, it was deemed necessary to control or regulate them into their "proper" areas of business. Third, during the Depression, overcapacity and bankruptcies were rampant in the trucking industry. The ICC believed regulation would protect the fledgling trucking industry from predatory prices while promoting stability and generating trucking capital (Breyer, 1982:234).

Through the Motor Carrier Act of 1935, the ICC was given authority to control the trucking industry with rate controls, limiting the number of clients, and establishing routes for each regulated trucking firm. To make up for this control, the ICC sheltered the trucking industry with a legal barrier preventing entry of new trucking firms into the market. A new firm had to secure a "certificate of public convenience and necessity" from the ICC (Kahley, 1982:40). Public convenience and necessity meant the requesting firm had to prove the public demand for the trucking service existed and currently operating trucking firms could not adequately meet the public's needs.

Trucking began to increase in importance during the Second World War. The Federal-Aid Highway Act of 1944, pushed for the building of the National System of Interstate

Highways, in support of national security. After WWII, the United States' economy boomed, and the trucking industry "benefitted from the profitability of shifting from centralized production with national distribution to regional production and distribution" (Kahley, 1982:38). From 1930 to 1950, the trucking industry increased its share of the nation's intercity freight from 3.8 percent to 15.8 percent; by 1980 this percentage would increase to 22.5 (Kahley, 1982:38).

In 1977, the ICC lowered its barrier to entry into the trucking industry. This regulation, which had read "public convenience and necessity," now read "that public service proposed will serve useful public purpose, responsive to a public demand or need" (Guandolo, 1981:116). A trucking firm entering the market did not have to prove other firms could not provide adequate service to meet consumer demand. The ICC endorsed this new policy to put a downward pressure on rates, to provide for better service, and to increase competition in the industry (O'Neal, 1979:72).

The Motor Carrier Act was passed into law on July 1, 1980. The major areas of the Act were (Kahley, 1982:40-41):

1. Governmental barriers to entry were lowered.

2. Regulated firms could now manage their own routes.

3. Categories of goods that could be hauled were expanded for common and exempt carriers.

4. Private carriers could now charge for backhauling cargo.

5. Price flexibility was added and the collective rate-making bureaus eliminated by the beginning of 1984.

Structure of the U.S. Trucking Industry. The divisions of the trucking industry need to be understood as regulated under the Motor Carrier Act of 1935. The structure of the trucking industry consists of common, private, exempt, and contract carriers. These industry division names are still valid today.

The common carrier is a transportation firm in the business of providing a trucking service to shippers over established and non-established routes. Under regulation, the ICC granted the common carriers authority to service these routes at set ICC rates. Common carrier firms were fully regulated by the ICC.

The private carrier is a shipper which transports its own merchandise and is not in the business of transporting other companies' goods. Under regulation, the private carriers could not carry cargo for compensation like the common carriers. This restriction on the private carriers was rescinded by the Toto decision in 1978. The Toto decision allowed private carriers to engage in common carrier business, provided they kept the activities independent and maintained separate records (Moskal, 1979a:81). The Toto decision decreased the amount of dead-heading (traveling from one place to another without cargo) and made the private carriers more efficient.

The exempt carrier can be either a common carrier or a contract carrier which moves goods for a charge, but it is excluded from ICC economic regulation because of the type of goods carried. For example, commodities such as grain, fish, produce, and livestock fit into this exempt category. The exempt carrier may move these agricultural products within a special commercial zone (Breyer, 1982:234).

The contract carrier is a trucking firm providing shipping operations for other firms under contract. The price for the contract carrier is negotiated with the shipper in advance. In a regulated environment, the ICC limited the number of contracts allowed for each contract carrier to eight. In 1978 the ICC relaxed this "Rule of Eight" requirement (Moskal, 1979b:26).

The truck carrier industry can further be broken down into Truckload (TL) and Less-Than-Truckload (LTL) sectors. The TL sector can be made up of common, contract, and private carriers (Glaskowsky, 1990:6). Truckload operations are those firms which sell or provide their services for full truckload business only (the consumer pays for the use of entire truck). "Truckload shipments do not go through terminals: they move directly from the shipper's dock to the consignee's dock" (Glaskowsky, 1990:6).

The price, time requirements on delivery, and the number and volume of shipments, would determine which type of TL carrier one would use. If a few limited shipments to various locations are required, then a common carrier may

serve the shipper the best. If the shipper had a high volume of goods to be shipped over a set distribution route, then a contract carrier may fit the bill. Shippers who required a "bidirectional traffic balance," or required timely, safe and controlled movement, may best be served using a private fleet (Glaskowsky, 1990:6).

LTL firms are shippers who provide service in less than truckload increments and charge the consumer by bulk or weight of the commodity. LTL requires a network of terminals, a large truck fleet, and a large labor force, therefore, the capital required to get into the LTL business is significant (Glaskowsky, 1990:6).

Review of the European Motor Carrier Industry

Background. The drive for a united Europe began in earnest shortly after the Second World War. The war had left Europe in ruins with its economy shattered and its resources all but exhausted (Mahotiere, 1970:19). To help rebuild Europe, the United States proposed the reconstruction program commonly known as the Marshall Plan. The U.S. policy, however, as stated by Secretary of State Marshall was to offer assistance to European nations based on their initiative (Jensen and Walter, 1965:7-8).

The first initiative occurred in 1947 with sixteen nations of Western Europe meeting in Paris resulting in the formation of the Organization for European Economic Cooperation (OEEC) (Wegs, 1977:138). Not only was the OEEC

to advise on the distribution of the more than $11 billion in U.S. aid, but it was also to promote economic harmony, avoid duplication of facilities, and develop freer trade between member countries (Jensen and Walter, 1965:8-9).

With a communist coup in Czechoslovakia (1948), the United States and European countries wanted a stronger military and economic European union to prevent the possible spread of communism into Western and Central Europe (Wegs, 1977:139). This led militarily to the formation of the North Atlantic Treaty Organization (NATO) and economically to the founding of the European Coal and Steel Community.

France's Commissioner of Planning, Jean Monnet, and Foreign Minister, Robert Schuman, proposed the creation of the European Coal and Steel Community (ECSC) to be run as a multinational institution (The United States, 1976:8). "The first supranational organization to be set up in post-war Europe" (Mahotiere, 1970:21), the ECSC enhanced the economic revival of Germany while alleviating French concerns of a new Europe dominated by Germany (Jensen and Walter, 1965:14). According to Schuman, multinational control of steel and coal resources would make war between France and Germany "not only unthinkable but materially impossible" (Wegs, 1977:140).

The ECSC's goal, although not completely achieved, was to eliminate restrictions on the free movement of resources. Quotas and license requirements were abolished, discriminatory practices such as transport rates were

outlawed, and subsidies were reduced (Jensen and Walter, 1965:15).

"The ECSC has served remarkably well as a model for future attempts at supranational integration in the economic world" (Jensen and Walter, 1965:18). Although limited in scope, the ECSC provided a taste of what economic cooperation could achieve. The next step in the evolution of a single market came with the establishment of the European Economic Community (EEC) by the Treaty of Rome in 1957. It formed the foundation which would eliminate customs barriers and create a common market (Wegs, 1977:142). This treaty "provided the nucleus for an economic union" (Jensen and Walter, 1965:23) which could encompass all of Europe.

Unfortunately, economic integration was not so easy to achieve since differing political interests created factions among the European countries. Seven members of the former OEEC had failed to join the EEC and formed the European Free Trade Association (EFTA) (Mahotiere, 1970:23). This factioning by Austria, Iceland, Liechtenstein, Norway, Sweden, and Switzerland was to delay the progress towards a true European Community (EC). Despite the rift, the EFTA and the EC may eventually form a free-trade European Economic Area (McClenahen, 1992:46).

The Single European Act. "In 1985, after a dozen years of stagnation and sliding morale, the European Community bewitched itself back into motion with the negotiation of

the Single European Act" (Colchester and Buchan, 1990:14). The Single European Act was designed to integrate the economies of Europe rather than merely establish a free-trade area (Colchester and Buchan, 1990:31). Thus it went further than previous efforts at European economic cooperation.

Lord Cockfield, EC Commissioner who drafted the blueprint for the Single European Act, envisioned the removal of physical, technical, and fiscal barriers to trade. His ideas have taken shape in the more than 275 directives of the EC expected to be enacted by 1992 (Steinberg, 1990:20-21). Many of the changes to be brought about by the Single European Act directly impact transportation operations in the EC and are designed to achieve a "free transport market without quantitative restrictions" (Lieb, 1991b:56).

"Postwar Europe, composed of insular, protected national markets, has been stagnant economically compared with the United States and the Far East" (Magee, 1989:78). The days of this stagnation may be numbered though. At no time since the Treaty of Rome was signed in 1957 has the European Community been closer to a true Common Market.

The impetus for this revival of Europe has been the Single European Act of 1987. The act "committed the EC to achievement of internal harmonization of member markets by removal of non-tariff barriers in both goods and services by December 31, 1992" (Lieb, 1991b:56). "Reform in European

transportation policy called for in the Treaty of Rome has developed into one of the most significant aspects of the Single Market Act" (Trunick, 1990:24).

The changes called for in the nearly 300 regulatory and policy issues set forth in the EC White Paper, *Completing the Internal Market*, have already significantly affected the trucking industry "which moves approximately 75 percent of intra-EC freight" (Lieb, 1991b:56). The objective of these issues was to:

> eliminate delays at border crossings, open transport markets to many new entrants while allowing existing carriers to modify their route networks, simplify documentation, and promote greater price competition among carriers. (Lieb, 1991b:56)

The major impediment to free-flowing transportation within Europe was the massive problems associated with border crossings. "Europe was not one market, but many, with subtle and not-so-subtle barriers to multinational trade" (Magee, 1989:80).

> Because of the myriad invoices, inputs to statistical analyses, and tax reports which had to be presented to cross each frontier, trucks stacked up for hours while this paperwork was examined. (Brandt, 1991:5)

The difficulty at border crossings has reduced movement of goods over the European highways to "an average of seven miles per hour" (Lieb, 1991b:58) and "cost motor carriers and shippers an estimated $891 million each year" (Trunick, 1990:24). A parallel problem has been the tremendous paperwork burden, "enough to bury King Kong and make cost-

and service-effective logistics hard to come by" (Moshavi, 1990:22).

Restrictions on existing companies and entrance into the industry have led to less than optimal economic competition. Two such restrictions concerned cabotage and permits. Cabotage is not a prohibitive policy but is "purely domestic transport operations within a member state by a non-resident [hauler]" (Parry, 1991:76). Current guidelines for cabotage dictate "truck freight hauled within a single country can only be carried by a motor carrier who is a citizen of that country" (Trunick, 1990:24). With present regulations concerning permits, "carriers must obtain a permit to haul goods between two points within the EC and must also obtain permits for each country they transit. Only a limited number are available" (Trunick, 1990:24). The restriction on backhauls means "fully 40% of the commercial vehicles crossing internal borders are empty" (Trunick, 1990:24).

Though "political pressures reflect the desire of specially protected groups to maintain their privileged positions -- the trucking industry in Germany, for example" (Magee, 1989:79), changes continue to shape the new EC motor carrier industry. Internal borders have opened to more free-flowing freight traffic and documentation has been streamlined.

One of the most important changes has been the introduction of the Single Administrative Document (SAD).

The SAD "eliminated many unnecessary documents while simplifying those which remain in use" (Lieb, 1991b:60). "Truck drivers used to have to carry some 35 documents for import-export declarations and community transit forms" (Stone, 1989:91). Estimates on the administrative savings through use of the SAD range from three percent (Stone, 1989:91) to seven percent (Lieb, 1991b:60).

The streamlining has also enabled faster border transit times. The result is improved delivery times and customer service. "Crossing from one country to another soon will be as easy as crossing from one state to another" (Moshavi, 1990:24). No longer will "trucks spend approximately 40 percent of their time waiting at border crossings" (Lieb, 1991b:58).

The elimination of burdensome regulations and restrictions will no doubt result in changes in company make-up and company operations. For example, "mega carriers with multi-service logistics networks operating over a wide area" (Cooper, 1990:15) have emerged. "Intermodal and international carrier mergers have become quite commonplace in the Community" (Lieb, 1991b:56). These are only a few of the many mergers, joint ventures, and logistics networks being developed to service the new EC. As one author noted, "predators and prey alike are searching for every competitive advantage" (Magee, 1989:81).

But with the opening of market economies comes the increased risk and competition as well. Companies in

"haulage [trucking], a business noted for its poor profitability when owner-operators are allowed easy entry to [and exit from] the market" (Cooper, 1990:13), may find it difficult to remain in business. Poor profitability will be compounded by "the rapid intensification of price competition" (Friberg, 1989:86). "This will be particularly true for new carriers that operate small truckload fleets in limited service areas" (Lieb, 1991b:59). Those that cannot meet the new requirements will not be able to compete and will be forced out. "The shakeout is necessary and inevitable to come to a healthy European industry" (Stone, 1989:93).

Studies of the U.S. and EC Trucking Industries

United States Motor Carrier Industry. Upon review of the literature, few comprehensive studies on the effect of trucking deregulation in the United States were found. Most studies involving the United States revolved around specific economic aspects of trucking and the impact of regulation on the firm. One example is the aspect of economy of scale in the deregulated motor carrier industry. A study by Grimm, Corsi, and Jarrell researched the motor carrier cost structure since deregulation and found an absence of economies of scale in all segments of the trucking industry (Grimm and others, 1989:231-247). This conclusion was also reached by Wang Chaing and Friedlaender who also concluded

technology contributed little to economies of scale (Wang Chaing and Friedlaender, 1985:250-258).

Robert Kling studied the impact of deregulation on the concentration of the motor carrier industry. Using the Herfindahl-Hirschman Index (HHI), he found an increase in the concentration of industry revenues among certain firms (Kling, 1988:1203). Smaller firms (operating revenue less than one million dollars, annually) have taken the brunt of business failures in the trucking industry, because they were weaker and could not fight off the competition (Kling, 1988:1203). Kling concluded that economic concentration was inevitable in a market system, and that the larger firms could generate "superior levels of profit despite loosened entry barriers" (Kling, 1988:1209). Kling did not agree with the study by Wang Chaing and Friedlaender, stating that there must be some economic advantage of size or at the least an economy of scale in management (Kling, 1988:1206).

Thomas Corsi and Joseph Stowers offer one of the most complete statistical analyses of the U.S. deregulation motor carrier industry. Their conclusions are paraphrased below:

1. From 1977 to 1987, real operating expenses per mile for all segments of the motor carrier industry declined 31.6 percent and revenues decreased 33 percent. Since revenue decreased, motor carrier management was looking for more ways to become efficient and open new markets.

2. Despite the industry concentration of the larger trucking firms, there are still enough carriers to ensure price competition.

3. Shippers are dealing with a smaller number of carriers, in an attempt to increase their bargaining power (by offering a large quantity of business). Therefore, only

those carriers who can provide the required service and price discounts will remain competitive.

4. Individual motor carriers have had significant gains, however, the industry has not had any significant changes in profits between 1977 and 1987 (Corsi and Stowers, 1991:25-26).

Several qualitative studies on the impact of U.S. deregulation have been accomplished. L. L. Waters predicted the possibility of re-regulation in the trucking industry because too many motor carrier firms do not have a handle on their operating cost and are therefore pricing themselves out of business (Waters, 1988:58). He predicts, "only those who know their cost and know what not to haul will survive" (Waters, 1988:60). He also disputes the conclusions of Corsi and Stowers concerning the concentration of the motor carrier industry. Waters believes the motor carrier industry (especially the Less-Than-Truckload segment) will be reduced to a few carriers, and anti-trust aspects of the industry must be explored under deregulation (Waters, 1988:62).

Another qualitative study by William Kahley studies the macroeconomic aspects of trucking. Kahley recommends that trucking and the nation have benefitted from the profits of switching from a national distribution system to regional distribution (Kahley, 1982:38). Kahley concludes that services have expanded and competition has driven prices down (Kahley, 1982:44).

Of the qualitative studies, the best and most comprehensive concerning the U.S. motor carriers was Effects

of Deregulation on Motor Carriers by Nicholas Glaskowsky. It is his data we will refer to the most concerning the U.S. regulated/deregulated environment for trucking. Glaskowsky was selected because his work offers the reader insight concerning market entry, service and service innovation, carrier competition, industry concentration, shipper information, and selected transportation policy issues.

European Motor Carrier Industry. One of the most comprehensive and pertinent studies was performed by Thomas Moore. Though published in 1976, his book provides significant insight into the European motor carrier industry under regulation. Moore's main objective was "to use European experience to measure the impact of regulation on the trucking industry (and therefore on the railroads) and on shippers" (Moore, 1976:2). He bases his findings on studies of the trucking industry in Great Britain, West Germany, Belgium, The Netherlands, and Sweden. Moore then presents a brief summary of the United States motor carrier industry and regulation. According to Moore, "regulation appears to have the same general impact wherever it is imposed" (Moore, 1976:145). Looking at the different markets, Moore concluded "strict regulation leads to higher rates, poorer service, and a decline in efficiency" (Moore, 1976:4-5).

Rask also compared the German and Swedish transport markets to highlight the differences between a regulated and unregulated industry (Rask, 1985:185). He concludes, as

does Moore, "efficiency is hampered by regulation" (Rask, 1985:193). Moreover, "the main effect of restrictions on competition is an increase in prices" (Rask, 1985:195). In addition, Rask feels:

> The existing regulatory system has probably slowed down the development of advanced transport networks. Advanced technology in transport networks, such as computer based information and control systems, has consequently not yet been fully exploited. (Rask, 1985:200)

In his dissertation, Alexiadis focused on "international freight transport allocation in the EEC and its relation to freight transport regulation...to examine the deregulation alternative" (Alexiadis, 1988:vi) in the European motor carrier industry. Alexiadis notices as does Moore that "the overregulation in the European freight transport market prevents it from operating with maximum efficiency" (Alexiadis, 1988:17). He mentions road freight transport as being:

> subject to very restrictive price and capacity regulation both at national and at intra-EEC levels... Furthermore, EEC regulation sets compulsory upper and lower limits (bracket tariffs) in most intra-EEC trucking rates. (Alexiadis, 1988:100-101)

Along with the above mentioned studies, the European Conference of Ministers of Transport (ECMT) have published a series of round table meetings on transport economics and of reports evaluating transport policy measures. These studies and reports cover a wide range of transportation related issues in the EC including international road haulage

taxation systems, possibilities and limits of regulation, and deregulation of freight transport.

Rommerskirchen looked at the impact of charges imposed on transport operators by the various EC countries. He examined the effects on industry competitiveness of "taxes, dues and charges levied on the purchase, keeping and operation of road haulage vehicles" (Rommerskirchen, 1986:10). "The varying rates of motor vehicle tax are the most frequently quoted figures in international comparisons of conditions of competition in road haulage" (Rommerskirchen, 1986:13-14). Taxes ranged from over 5,000 ECU in the United Kingdom to 375 ECU in Italy, but differences in tax bases and other features limit interpretation of the data (Rommerskirchen, 1986:14).

In addition to tax differences, the basic costs of operations vary among EC-member states. License fees are imposed by several countries, and permits are required to operate in EC transportation. The costs of licenses and trip permits are relatively minor, but the cost to acquire period permits can be staggering. "In Germany it seems that as much as 90,000 ECU has been offered for the allocation of a German long-distance transport concession" (Rommerskirchen, 1986:19).

Rommerskirchen's noted discrepancies in tax rates and fees charged are reinforced in a separate report to the ECMT. This report confirms "disparities in taxation lead to differences in competitiveness which contribute to the

development of imbalances in traffic" (Financial Imbalances, 1986:57). For example, annual fixed-rate taxes ranged from 30,350 francs in Germany to 11,780 francs in the Netherlands in 1984 (Financial Imbalances, 1986:57).

Baum also mentions taxes and subsidies as providing means for governing bodies to exert control over a transport sector and to even impact the modal market share (Baum, 1983:21). Baum, however, does not concentrate on this area but examines several aspects of transportation regulation and deregulation. For example, looking at market entry for road haulage, Baum notes "the licensing and quota systems hamper the entry of new suppliers" (Baum, 1983:54). Overall, Baum's findings indicate:

> The order of magnitude of the social costs of transport market regulation vary between US$4 and 10 billion according to the study...75 per cent of the costs to the economy are due to production inefficiency, 21 per cent to an unproductive modal split and 4 per cent to losses caused by reduced demand due to regulation. (Baum, 1983:27)

Other authors looked at the deregulation which had taken place in some domestic European markets and the question of future deregulation. Bernadet discussed the liberalization of the French transport industry. One new policy in France is to "increase the number of permits issued so that by the time the Single Market has become a reality, the authorization requirement is no longer a real barrier to market access" (Bernadet, 1991:11). According to Bernadet, the cost for certain licenses have decreased from 200,000 francs to under 50,000 francs (Bernadet, 1991:12).

Seidenfus examined the views on deregulation of France's neighboring country, Germany. He concluded "in the interests of a functionally viable market, quantitative restrictions on cross-frontier road freight traffic should be abolished" (Seidenfus, 1991:96). He notes, however, though agreement has been reached on some problems of deregulation, many questions remain (Seidenfus, 1991:96).

Anticipated EC Logistics Changes. In a study by Poist and Scheraga, logistics executives were surveyed "regarding the perceived impact of Europe 1992 on the firm in general and the distribution/logistics function in particular" (Poist and Scheraga, 1991:36). Though the executives believed every logistics function would increase in importance with the implementation of EC '92, 30 percent felt transportation/traffic management would see a "substantial increase" in importance (Poist and Scheraga, 1991:38). When asked about how prepared their firms were to react to EC '92, over 55 percent of the executives indicated significant levels of preparation throughout their firms with "a slightly higher level of preparation by the logistics department" (Poist and Scheraga, 1991:38). With over 80 percent of the responding executives indicating logistics would increase or substantially increase in importance, this "finding substantiates the view found in the literature that the effects of 1992 are going to be most strongly felt in the logistics area" (Poist and Scheraga, 1991:40).

"How executives (and others, but primarily executives) perceive the new Europe, and what they're doing about it" (Hall, 1992:7) is also the focus of a study by Hall. One interesting finding of Hall's is the belief in the tremendous growth (of geographical area) to come in the European Community.

> Most respondents believed that the EFTA countries and possibly Yugoslavia would merge with the EC countries within three to five years following 1992; that Hungary and Czechoslovakia would join the 'Euro-union' by late in the decade; that Poland would be admitted around 2000; and that the Soviet Union would likely join the Euro-union somewhere around the year 2000, having lost the Baltic states but emerging as a stable, nonviolent loose confederation of republics. (Hall, 1992:20)

Survey respondents believed American companies stand to benefit in the short run with the coming of the Euromarket. The belief is, however, that "in the long run European firms stand to gain the most; that North American firms will probably hold fairly constant" (Hall, 1992:49). In regards to strategies to meet the challenges of the Euromarket,

> European executives report that virtually all players...are undertaking three major actions: (1) segmenting to focus and strengthen core businesses; (2) consolidating to gain critical mass; and (3) internationalizing to become world-scale/world class. (Hall, 1992:51)

Braithwaite is also convinced of the importance of logistics with EC '92 on the horizon. According to him, logistics has become "the discipline through which resolution of the conflicts of interests between manufacturing and marketing, culture and organization can be

resolved" (Braithwaite, 1991:260). Planning and flexibility will be paramount in the new operating environment.

> Attaining good logistics will be a process of iteration as organizations constantly look for new formula in response to the activities of the competition or as a way of winning competitive advantage. (Braithwaite, 1991:261)

Braithwaite examines several areas where success can be created through logistics in Europe. He looks at the logistics network structure, transportation specification, supply chain operating rules, systems and systems integration, and finally organization and people (Braithwaite, 1991:275). He provides examples of current practices and mentions areas of increasing interest such as developing pan-European functions and the increased importance of data networking (Braithwaite, 1991:285).

Cooper also looked at logistics in Europe from a slightly different perspective. He examined how companies are planning strategies "when data essential to strategy building is simply not available" (Cooper and Byrne, 1991:317). More specifically, he looked at third party logistics "to build up a picture of logistics market segmentation in Europe and then form a view on the future shape of logistics services" (Cooper and Byrne, 1991:322).

What Cooper discovered was "just how different European countries were in terms of the third party logistics services on offer" (Cooper and Byrne, 1991:318). To eliminate some of the differences in defining third party logistics in the different countries of the EC, Cooper

developed a ten cell matrix based on the logistics services offered. Such a description "would be unambiguous in any language" (Cooper and Byrne, 1991:318). Using this matrix, Cooper surveyed experts in the field of logistics. The survey responses were used to predict growing, static, or declining market segments. According to the findings, "it appears that there is a shift in Europe from common user services (such as general haulage, and general haulage and storage) to more specialized freight services" (Cooper and Byrne, 1991:323).

III. Methodology

This study of the United States and EC trucking industry examines "recent (or historically significant) research studies, company data, or industry reports that act as a basis for the proposed study" (Emory and Cooper, 1991:122). Current and past practices of the two environments were viewed to highlight the existing similarities and differences.

Historical research on the U.S. motor carrier industry provides a before and after view of deregulation. Looking at the deregulation of transportation in the United States should stimulate an awareness of the benefits or pitfalls of a deregulated transportation environment (Delaney, 1988:1). Use of the historical research method is "done to show how previous experience may contribute to understanding of present or even future circumstances" (Egan and Bartolo, 1976:13).

Having provided a historical background of the United States and EC trucking environments, this research next examines pertinent studies on the subject "in order to know what the existing state of knowledge is so that it can be used as a base for further investigation" (Egan and Bartolo, 1976:47). The literature review provides insight into the significant elements of the transportation environment to enable the narrowing of the topic for this research study.

On the basis of the literature reviewed, four aspects of the transportation industry emerge as the areas most deserving of attention. Route control, price controls, efficiency, and market share and concentration are the themes of regulatory reform which are examined to answer investigative questions one and two.

Investigative Questions One and Two. First, the question of controlling authorized truck routes is examined. In the United States' regulated trucking environment, governmental control impacted route structure through restrictions on market entry and exit. The Motor Carrier Act of 1980 removed the restrictions on operating authorities (Stock and Lambert, 1987:205) and allowed carriers to chose their routes. EC member states currently control trucking routes authorizations through licensing requirements. Proposed changes "would let motor carriers from one member country freely cross all EC borders...and would end the limit on road trips" (Tucker and Whyte, 1991:12).

Price setting is another aspect of the motor carrier industry deserving review. Prior to deregulation in the United States, collectives of trucking companies known as rate bureaus controlled regional prices charged for service. The rate bureaus published these rates after approval by the Interstate Commerce Commission (ICC). Deregulation allowed prices to fluxuate within a "zone of rate freedom" (Stock and Lambert, 1987:205), thus giving carriers some

flexibility. In the EC, national organizations and the Council of Ministers established price regulations. Recommendations have been made by the Organization for Economic Cooperation and Development that "regulation of routes and rates should also be abandoned" (Competition Policy, 1990:11).

Set route authorizations and rate schedules may have influenced the regulated trucking industry to be inefficient. The trucking companies were not forced (through competition) or allowed to be efficient. Limitations in the U.S. and the EC concerning backhauls restricted practical options available for trucking companies. According to the OECD, "the deregulation of road freight has been beneficial for both shippers and consumers and has increased the efficiency of the carriers themselves" (Competition Policy, 1990:9).

Market share and industry concentration under regulation tends to be extremely stable. "The industry was structured along clear lines of truckload, less-than-truckload, common, contract, and private carriage" (Canny and Rastatter, 1988:2). Deregulation blurred the distinction between segments and allowed the composition of the industry to change drastically. Also, with restrictions on market entry eased, a much higher level of competition was created (Stock and Lambert, 1987:206). Thus trucking companies had now to fight for their market share. European trucking firms are protected based on individual government

policy. However, "the gradual liberalization of the European trucking industry...will lead to...greater competition among truckers" (Friberg, 1989:87).

Investigative Question Three. Although many benefits are seen for Europe as it embarks on the path of deregulation, the problem of the infrastructure needed to support EC'92 raises some concern. "The transportation infrastructure is not European-wide, but national and even local. It was built for national purposes, not to provide a European network" (Tuerks and Zubrod, 1989:35). Aspects of the existing infrastructure and proposals for improvements will be considered to answer investigative question three.

Investigative Questions Four and Five. By looking at how changes brought about by deregulation have strategic logistic implications for trucking companies and for business and military customers of trucking services, investigative questions four and five are answered. The literature indicates some companies are already positioning themselves to take advantage of the new operating environment. Though the Single Market Act appears to "offer lucrative opportunities for U.S. companies...there are few signs of a gold rush across the Atlantic" (Barnard, 1991:31). According to the Military Traffic Management Command, for military implications of EC '92, with the decreasing U.S. military force size in Europe, host nation support will likely increase (Jones, 1991). As a result,

EC-member nation motor carriers may become a vital part of U.S. military strategy.

Investigative Question Six. Similarities between U.S. and EC-member motor carrier industries are apparent and highlighted throughout Chapter V and summarized in Chapter VI to ultimately answer investigative question six.

Format. Analysis of the United States and European motor carrier industries and regulatory environments are listed separately to enable the reader to view only the areas of particular interest to them. The compartmentalization of Chapters IV and V should not detract from the comparison and contrasting of the two industries.

Sources. A personal visit to the American Trucking Association and use of the inter-library loan program provided the bulk of U.S. motor carrier deregulation information. The statistical data for the top-100 carriers was obtained from *Transport Topics* and *Chilton's Commercial Carrier Journal*.

We were surprised not to find an aggregation of data concerning the European transportation environment, particularly on the European trucking in a deregulated environment. Most of the information available concerning the impact of the deregulation of the motor carrier industry has been through trade journals, business magazines, and a few professional journal articles.

Local libraries provided a bulk of the literature on business strategy changes concerning the introduction of EC

'92. EC trucking statistics came from the European Conference of Ministers of Transport (ECMT), and EUROSTAT. The statistical data was a secondary data source using predominately external sources because of the high cost to collect primary data. The United States Department of Commerce's International Trade Administration in Washington D.C. opened its files and provided an excellent source of information concerning the deregulation of the European trucking industry. A visit to the European Community Library, also in Washington D.C., augmented this information. The Council of Logistics Management (1991) and Road Transport Deregulation: Experience, Evaluation, Experience Research (1988) proceedings provided excellent information.

Limitations. Due to the nature of the topic, the authors had to rely on secondary sources for a large amount of the analysis. Also, statistical information concerning individual EC trucking firms was severely limited, and difficulty in performing detailed empirical analysis due to differences in scale and scope was encountered. Some of the problems with European statistical data are listed below:

> 1. "Considerable differences in value arise within the various sets of OECD statistics. The consequence is that...we have a very incomplete picture of external trade interactions and hence of the relevant transport functions" (Aberle, 1985:18).
>
> 2. Another problem is that "changes in exchange rates make it difficult to draw any conclusions" (Aberle, 1985:18).

3. "The share of intra-OECD trade cannot be separated from that of trade with third countries; and hence double entries (once as an export, once as an import into the OECD area) make aggregation impossible" (Aberle, 1985:18).

4. "Not only are special statistics on nationally specific transport expenditure incomplete, but even the basic statistics on the volumes arising in the transport of passengers and goods in the EC Member States are so patchy that no valid statements of totals and balances are possible for the EC alone" (Aberle, 1985:18).

5. "It is difficult to infer the effect of regulation from the welter of statistics. Moreover, the figures themselves are often not directly comparable, and among the figures profit and bankruptcy statistics are particularly suspect. For example, in Sweden reported profits are 1.2 percent of revenue, while in Great Britain for a sample of firms they have averaged about 11 percent. But in Sweden the return on capital after taxes was equal to 16.8 percent in 1971, while the average rate of return for eight companies in England for the same year was 17.8 percent *before taxes* and the five-year average was 14.6 percent before taxes" (Moore, 1976:122).

6. In Europe "data problems are often horrendous on account of:

a. variations in data definitions between countries;

b. different governments collect different data, which means that data available in one country is absent in another;

c. lack of up-to-date data, some countries are notoriously slow at publishing data;

d. data accuracy; both public and private organizations have variable track records on data accuracy." (Cooper and Byrne, 1991:317)

In the EC, "the picture on data is poor but improving. It is similar for the countries of the European Free Trade

Association, but disastrous in eastern Europe" (Cooper and Byrne, 1991:317).

Data for the United States trucking industry was available and provided useful comparative information in the areas of market concentration and rate structure. However, the data did not provide significant insight into the effects of deregulation on corporate profitability. An attempt to analyze statistical data on the top 100 trucking firms led to no valuable insight for inclusion into this thesis. "In five individual industry segments, there have been no statistically significant changes between 1977 and 1987 in any of the profit indicators" (Corsi and Stowers, 1991:26).

Historical Analysis. This method is applicable in many instances, however:

> Although the modern trend of analysis in areas such as the social sciences is to favor those problems and techniques that can be expressed and explored through the use of numerical representation, it is still readily apparent that many of the important issues of our day involve phenomena exceedingly difficult, if not impossible, to measure. (Katzner, 1983:1)

Political, economic, and human factors are difficult to quantify yet certainly create an impact when attempting to make predictions dealing at the macro-level. This thesis was completed using information pertaining to the macro-level investigation into the United States and EC-member states' experiences with deregulating their trucking industries, because:

> An assessment of the effects of deregulation on the motor carrier industry is necessarily a set of macro conclusions. Not all members of any particular class of motor carriers have been affected equally. Some shippers, due to their particular operating circumstances, have been hurt by the effects of deregulation, while others of similar or different size in the same or a different industry have benefitted substantially. (Glaskowsky, 1990:87)

Using macro-level data, the researcher is left with extrapolating existing data and exploring theory based on opinion and archival research. As described by Glaskowsky, who used a similar method of studying the changes in the United States deregulated motor carrier industry, "the mantle of prophecy is a dangerous garment" (Glaskowsky, 1990:ix).

IV. Findings and Analysis -- United States

Introduction

When Alfred E. Kahn, President Carter's anti-inflation czar, deregulated the airline industry in 1978, he was asked to look at areas in the economy where competition could be enhanced, he stated about the trucking industry: "If there is any other industry with greater potential for competition, I don't know of it" (Trucking Deregulation, 1978:64).

U.S. Trucking Routes Under Regulation

"The Motor Carrier Act of 1935 pretty much froze in place the motor carriers' [existing] routes being served at that time" (Glaskowsky, 1990:23). The Interstate Commerce Commission (ICC) was given authority to control the trucking industry's route authority. "For the next 45 years just about the only way to get new route authority was to acquire it from an existing motor carrier or to merge with or acquire another carrier" (Glaskowsky, 1990:23).

The ICC was responsible for certifying and dictating the number of routes for each regulated trucking firm. This ICC certification awarded the carrier the right to solicit business in a geographic area and established the carrier's responsibility and the points where the carrier could haul freight (Whitlock, 1979:663). The ICC did this not only to protect the trucking and railroad industries' routes, but to

ensure the trucking operations would meet "public convenience and necessity" (Guandolo, 1981:116). To meet shifts in freight demographics (new towns or manufacturing facilities) a new carrier could request certification to service customer demand by proving public convenience and necessity.

The Transportation Act of 1958, also limited the route making authority and the certification of motor carriers. Two amendments of the Transportation Act limited the judicial interpretation of the classification of exempt carriers (dealing with agriculture) and private carriers who were exempt from hauling for-hire traffic (Coyle and others, 1990:311). Previously, these two groups of carriers (exempt and private) operated in a "grey area" of ICC jurisdiction and were competing with the common and contract carriers (Coyle and others, 1990:311).

The route authority granted by the ICC to the carriers provided stability and a guarantee of service to small town businesses. The ICC dictated that trucking firms must operate routes into small towns and service small businesses on a regular schedule under "common-carrier obligation" (Trucking Deregulation, 1978:66). Furthermore, the ICC dictated that trucking firms must use specific roads even if the carrier had to extend the distance of the trip travelled by 30 to 40 percent (Breyer, 1982:234). This ICC ruling regulated inefficiencies into the industry. These inefficiencies caused some concern, but congressional

representatives were worried towns off the main interstate would cease to receive trucking services or the shippers would be forced to pay the higher cost for carrier service (Trucking Deregulation, 1978:66). Bennett C. Whitlock Jr., President of the American Trucking Associations (1979), stated:

> The unpleasant truth is that routes to smaller or isolated towns are less profitable, or simple[ly] unprofitable for most trucking firms. A survey of regulated motor carriers indicates carriers, if relieved of their responsibilities to serve [smaller towns], would reduce the average number of towns they serve from the present 84 to only 58. These abandoned towns must be prepared for less frequent service at higher cost. (Whitlock, 1979:663)

Not only did the ICC certificate specify where a carrier could operate, but it dictated what type of commodity the carrier could haul. If the truck was not certified to carry a certain commodity, the truck remained idle (Breyer, 1982:234). Carriers were limited to hauling commodities one-way and then returning with the truck empty, thus causing duplicate runs.

With established routes and decreased uncertainty (because of ICC barriers to entry of new competition), the trucking industry did not have to be efficient. Common carrier trucking firms flourished under ICC authorized routes in which only a limited number of other certified trucking firms could operate. Because the number of carriers per route was restricted by the ICC, banks would offer trucking firms loans based on the perceived value of

their certified routes. For example, in 1978, Yellow Freight Systems had company routes whose net worth was $45 million (Trucking Deregulation, 1978:64). Although the ICC did not condone "trafficking routes," there was considerable trading of route operating rights with some being sold for hundreds of thousands and even millions of dollars (Moore, 1988:4). Routes, even if inefficient to operate, were kept as collateral for additional bank loans.

U.S. Trucking Routes Under Deregulation

The Motor Carrier Act was passed into law on July 1, 1980. The major areas of the Act concerning routes were (Kahley, 1982:40-41):

1. Governmental barriers to entry were lowered.
2. Regulated firms could now manage their own routes.
3. Categories of goods that could be hauled were expanded for common and exempt carriers.
4. Private carriers could now charge for backhauling cargo.

Three years before the Motor Carrier Act of 1980, the ICC lowered its barrier to entry which had read "public convenience and necessity" to now read "that the service proposed will serve useful public purpose, responsive to a public demand or need" (Guandolo, 1981:116). New entrants into the trucking industry no longer had to prove public necessity and demand for additional trucking firms to service a route. In 1977, the ICC granted 96.7 percent of

the requests for entry into the trucking industry (Trucking Deregulation, 1978:64).

These new policies of trucking deregulation affirmed of what the carrier and shipper wanted, "a more rational legal and regulatory treatment of carrier route-serving authority" (Glaskowsky, 1990:23). This route rationalization allowed carriers to economically establish their own markets, rather than attempting to purchase their routes into a market. "The trucking industry was deregulated in 1980, giving all transportation companies immediate access to 48-state authority" (Rader, 1989:43).

Routes Authorizations in Small Communities. Many small towns and rural businesses feared that deregulation would force carriers to stop servicing their areas by ending guaranteed trucking service (Bershad, 1980:122). Despite what Bennett C. Whitlock Jr. stated above, that the small towns were being served because the ICC forced the carriers to do business in smaller, isolated towns; the smaller communities and smaller shippers were being serviced through heavy traffic volume between major transportation centers (Glaskowsky, 1990:24). Other pro-deregulators were quick to point out that the smaller communities "would receive as much service as they needed because some carrier(s) would be able to make money by serving such locations" (Glaskowsky, 1990:24).

Nicholas A. Glaskowsky, Jr., who wrote several papers and an extensive study of trucking deregulation for the ENO

Foundation, states: "with regard to frequency of service, most [shipment] deliveries to small communities are not very time sensitive" (Glaskowsky, 1990:24). Canny and Rastatter imply that the Department of Transportation studies since 1979 conclude rural areas are receiving service as good or better than pre-deregulation of the trucking industry (Canny and Rastatter, 1988:5). "Improvements in service quality and competition have been reported three to ten times more often than deteriorations, regardless of the remoteness of the shipper's or receiver's location" (Canny and Rastatter, 1988:5). These conclusions on service to small towns are contradicted by Mary-Margaret Wanluck, who studied the problems experienced by small town businesses. Wanluck wrote about one small business owner who stated:

> We're a small town--about 6,000 people. Before, federal rules required a truck to come into town every day. Now they come when they get a load, and that may be a day, a week, several weeks. (Wanluck, 1985:65)

"Although a number of studies of service to small towns have been carried out, they are inconclusive" (Glaskowsky, 1990:24).

Price Setting in the Regulated U.S. Trucking Industry

The Motor Carrier Act of 1935 delegated responsibility for the right to establish motor carrier rates to the ICC (Whitlock, 1979:663). "Initially, motor carrier rates for regulated commodities were patterned after rail charges" (Winston and others, 1990:4). When rates were equal, a

service advantage usually existed for the motor carrier industry over the railroad industry. However, the poor highway and road conditions of the 1930s, coupled with limited trucking capacity, meant little traffic was taken away from the rail industry (Winston and others, 1990:4).

Rate Bureaus During Regulation. Established in 1942 under the Reed-Bulwinkle Act, the pricing system used by trucking firms was set by regional rate bureaus, that published rates for nearly all truck routes. The Reed-Bulwinkle Act gave the rate bureaus and the trucking industry immunity from antitrust laws and freedom from legal action resulting from anticompetitive behavior such as price fixing (Canny and Rastatter, 1988:1). The rate bureaus were a legal body operated by associations of carriers for collective rate making, approving rate changes, and publishing rates for the industry (Canny and Rastatter, 1988:10). The Reed-Bulwinkle Act also stipulated the motor carrier industry must file their actual rates with the ICC (Coyle and others, 1990:310). While rate bureaus had to submit their rates to the ICC, the rates were routinely accepted and rarely overturned (Canny and Rastatter, 1988:1). Once the rates were filed with the ICC, the Commerce Department validated the rates and ensured the rates were not pricing other carriers in other modes of transportation out of business.

Ten major rate bureaus were organized to cover the geographic United States. These ten major rate bureaus were

organized to regulate price, length of haul, and empty backhaul conditions which varied by region (Trucking Industry, 1991:R52). "Consequently, a rate increase that is generous for movements in a region where there are long line-hauls would be inadequate in congested short-haul markets" (Trucking Industry, 1991:R52). Not all truck firms were obligated to send their rates through these rate bureaus. Some isolated cases established independent rates directly with the ICC.

The Transportation Act of 1958 limited the rate making capabilities provided to the ICC under the Reed-Bulwinkle Act. This 1958 act "admonished the ICC and instructed it not to hold up rates to a particular level to protect the traffic of another mode" (Coyle and others, 1990:310).

Price Stability? The regulation of trucking directly impacted the industry's price setting stability. The following statement sums up how a majority of economists have viewed the impact regulation had on the trucking industry:

> ICC regulation of trucking mainly resulted in cartel pricing, restricted entry, and inefficiency. The Commission's effort was largely to prevent price cutting. It [regulation] tended to raise prices, by approving the collusive proposed rates. (Kling, 1988:1207)

However, this view was not shared by non-economists especially in the trucking industry. Bennett C. Whitlock, Jr., President of the American Trucking Associations,

expressed the industry's view on the possibility of trucking deregulation:

> Currently [1979], the motor carrier industry operates in an atmosphere of stability, which is the ideal environment for any business. Consequently, we can plan wisely and earn a fair return on our investment, while at the same time offering trucking service at a low cost. (Whitlock, 1979:664)

Trucking rates established by rate bureaus were rarely challenged by the ICC. Although the trucking firms were not pure oligopolies (too many firms), they set their own prices through collective rate making, very much like a cartel. Shippers began to complain that the carriers' collective rates were too high and the level of competition was too low (Trucking Deregulation, 1978:63).

Figure 1 depicts how the rate bureaus would set the trucking industry's prices. The point at which a firm can maximize its total profit is where marginal revenue (MR) and marginal cost (MC) intersect. Thus, the firm will establish its quantity of output or service (Q) and its price will be set up at point P. Under pure competition the market would establish the firm's price level at P1, where marginal cost (MC) equalled demand (D) or service requested. Under collusion (collective price setting), the firms will make a higher profit level, and the quantity of output or service provided to the customers (Q) would be less.

The cartel-like price setting of the rate bureaus added stability to the trucking industry. The pricing system benefitted regulated carriers, not the consumer. The

cartel-like price setting also helped specific areas of the industry.

> Various studies concluded that the trucking industry's collective ratemaking system, composed of regional rate bureaus, resulted in rates in the LTL [Less Than Truckload] sector that were considerably higher than they would be in a fully competitive environment. (Winston and others, 1990:4)

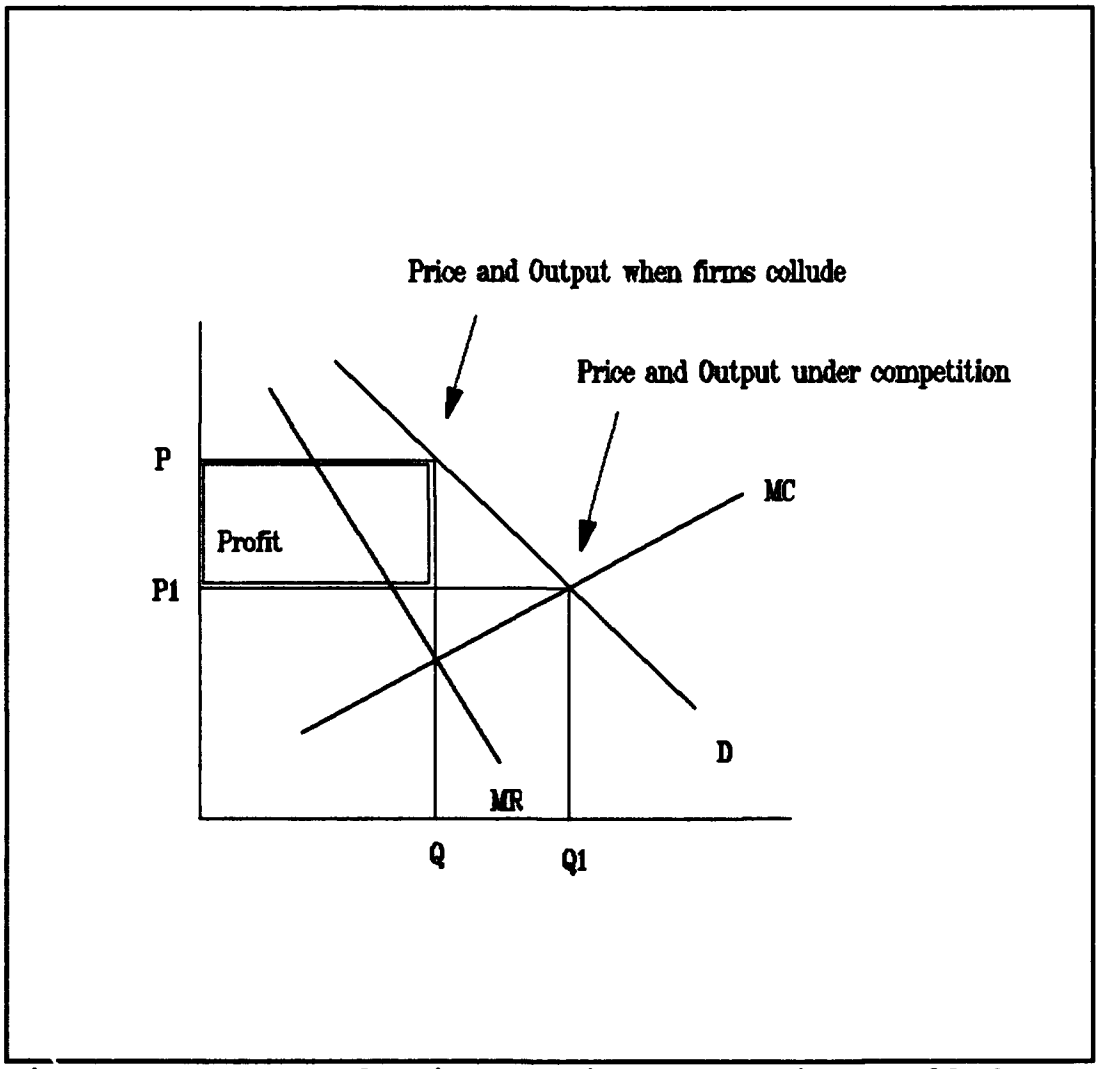

Figure 1. Range of Price Settings When Firms Collude and Firms Compete. (Gwartney, 1982:309)

The ICC made the trucking industry an uncompetitive market; routes were established with no threat of being undercut in price or by entry of other firms. With set rates, the company could project exactly how much money it could expect to make. The rates were set to take care of weaker trucking firms within a region and provide an "industry determined" reasonable rate of return.

If a trucking carrier established its rates too low, other carriers could petition the ICC to investigate the lower rates. The lower rates were normally suspended pending the investigation and often by the time the ICC concluded that the rates were legal, the rates became obsolete (Moore, 1988:3-4).

Price Setting in a Deregulated U.S. Trucking Industry

The Motor Carrier Act of 1980 created a deregulated trucking environment and changed the industry's price setting methods. The ICC lost its veto power over price changes (up or down) of 10 percent, and the collective rate-making bureaus were to be eliminated by the beginning of 1984 (Kahley, 1982:40-41). Common carriers were still required to report and publish their rates and tariffs with the ICC, while the contract carriers were relieved of this requirement (Glaskowsky, 1990:61). The trucking industry responded to the 1980 Motor Carrier Act by stating:

> Faced with excess capacity, carriers will use the increased price freedom to drop rates to variable costs in order to attract freight from competitors. The end result will be widespread

> price wars, bankruptcies and chaotic conditions in the industry. (Rakowski, 1988:12)

As previously mentioned, under regulation the trucking rates were established by cartel-like pricing. With the Motor Carrier Act of 1980, new competition could readily enter most segments of the market. Within one year after deregulation, over 1,500 new trucking firms were available to service the consumer's needs (Gatty, 1981:50). In July 1984, the trucking industry experienced theoretical freedom for entry into new markets and rate freedom from the ICC and rate bureaus. "It appeared that virtually any rate reduction went unchallenged by the Commission [ICC]" (Rakowski, 1988:13). In the first year of deregulation, ICC reports showed that trucking rates decreased by 10 percent around the nation (Kahley, 1982:42).

With more competitors in the industry, consumers could shop around for better prices. The industry was forced to lower its prices because of a shift to the right of the supply curve. Figure 2 portrays what had occurred to the industry's prices.

With new entrants into the industry, the supply curve (S) increased or shifted to the right to S1. The demand curve (Demand) remained the same, so the price carriers could charge would be expected to fall to a new equilibrium point (P1). With the influx of new carriers, the majority of the trucking industry had probably lost its strongest stabilizing factor -- barrier of entry.

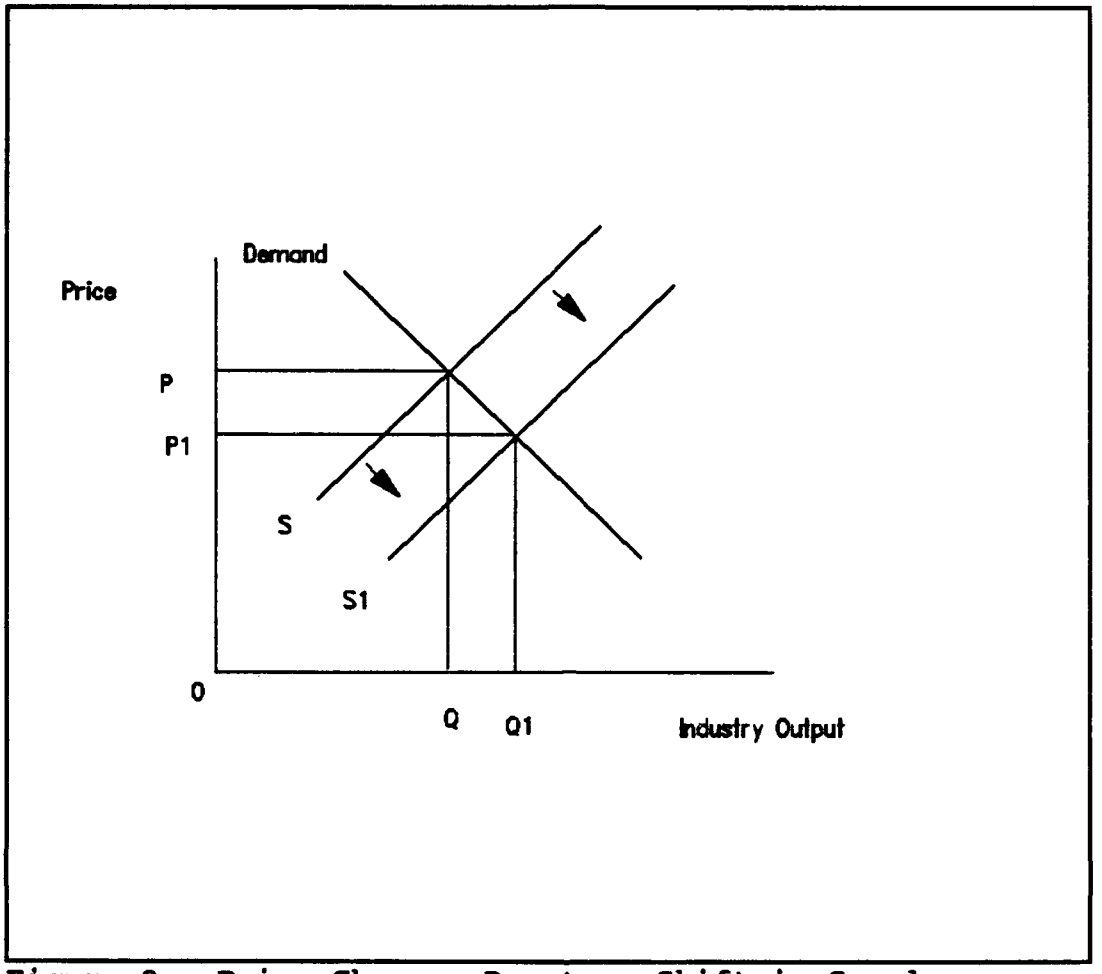

Figure 2. Price Changes Due to a Shift in Supply. (Mansfield, 1988:252)

However, there appears to have been relatively little response to price changed in the demand for trucking services. Glaskowsky stated, "Freight transportation is a derived demand industry" (Glaskowsky, 1990:73), and he provides a good illustration of this:

> A shipper does not ship more goods because the rate has been discounted 5 or 10 percent, or even 20 percent or more; the shipper will just smile and pocket the difference. (Glaskowsky, 1990:73-74)

Competitive Rates. Carriers complained to the ICC that some firms were setting their prices below cost to force competitors to meet this cost or go out of business (Kahley, 1982:42). Before passing the Motor Carrier Act on 1980, the U.S. Congress anticipated this problem, and the following statement was put in the House Committee's report:

> It [MCA of 1980] will put a greater burden upon individual carriers to determine their own cost structures and the most optimum rates from the individual company point of view to offer the shipping public. But on balance, the Committee believes that there will be public benefits that outweigh the burdens of changing to a new system -- namely more competitive pricing. (Guandolo, 1981:117)

Also impacting the trucking industry was the 1980-82 recession; the "motor carrier deregulation came at a very bad time in terms of the national economy" (Glaskowsky, 1990:73). During this time fuel prices increased sharply causing carriers' operating cost to increase at the same time they were trying to reduce their prices to compete. Price reductions or discounts were done to maintain a share of the market.

All in all the rates for truckload (TL) shipments decreased by 25 percent (by 1982) and rates decreased for the Less-than-Truckload (LTL) carriers by about 16 percent during the same period (Canny and Rastatter, 1988:2). The cost for operating a private carrier business also decreased (Schweitzer, 1988:1-8).

Price Setting for Small Communities. The small communities worried they would be left out of the route and

rate structures of the deregulated trucking environment. Under deregulation the trucking industry could use discriminating pricing against the smaller towns.

> Well located shippers would receive favorable treatment as to carriers' service and rates, while smaller, not so ideally located firms, would be denied adequate freight transport accommodations. (Report on Joint Conference, 1980:245)

Although the transportation industry is not subject to several price discrimination prohibitions (because it offers a service and not a good) of the Robinson-Patman Act, in a regulated environment, the small communities' shippers were protected from price discrimination by the ICC (Glaskowsky, 1990:64). Price discrimination is where two buyers are charged different prices for the same service or good (Mansfield, 1988:A-31). This protection of price discrimination by the ICC may not have worked. According to Daniel O'Neal, former Chairman of the Interstate Commerce Commission, one of the economic goals of deregulation was the "prevention of discrimination against firms, products, shipment sizes and places" (O'Neal, 1979:72). The ICC did stop one type of discrimination, since under ICC rules the carriers were forced to visit small towns of which the carriers were certified, once a day (Glaskowsky, 1990:24).

Due to decreasing profits, the trucking industry began to operate only where marginal revenues were the greatest -- around the big industrial areas and cities. Prices appeared to increase for the small towns and the small shippers.

Glaskowsky is not sure these prices were increased based on discrimination; he states:

> If the rates for service to small communities have been increased, is this discrimination, or is it simply a proper reflection of the real cost of serving a thin route -- a route that was perhaps subsidized by heavy traffic routes? (Glaskowsky, 1990:24)

Death of the Rate Bureaus? Under the Motor Carrier Act of 1980, rate bureaus were to stop collective price setting for single line rates as of July 1, 1984 (Glaskowsky, 1990:61). Rate bureaus were not quick to give up this collective rate making and rate changing power. "The ICC has rebuffed a series of challenges in which rate bureaus have attempted to construe these exceptions [to the MCA of 1980] broadly" (Glaskowsky, 1990:61).

Under the Motor Carrier Act of 1980, carriers were allowed to change their rates annually without regulatory review (Trucking Industry, 1991:R52). Since then the carriers have moved away from the rate publishing services of the rate bureaus. "Some 1.2 million independent rates will be filed in 1991, compared with about 200,000 annually before deregulation" (Trucking Industry, 1991:R52). In June 1991, the ICC concluded in a report that rate bureaus had little use other than pricing joint-hauls, and that the rate bureaus were not inflating prices or hurting shippers. "The game of hiking rates through the bureaus, only to later discount most of the increase, is a simple ploy to make

shippers think they're getting a bargain" (Trucking Industry, 1991:R52).

While *Industry Surveys* describes rate bureaus as archaic institutions (Trucking Industry, 1991:R52), others feel the rate bureaus are providing valuable information the ICC no longer provides for the trucking industry. This is especially true in the area of trucking statistics (Glaskowsky, 1990:53). So what use do the rate bureaus serve in a deregulated environment? Glaskowsky offers some suggestions of what the rate bureaus provide:

1. Study of the impact of rate changes on traffic.
2. Financial and economic analysis of the industry.
3. Publication and distribution of rate tariffs to shippers and carriers.
4. Assisting carriers, shippers and consultants with rates, audits and information concerning rates.
5. Assists in classifying freight in accordance with federal and state regulations.
6. Provides a forum for the carriers to discuss problems (Glaskowsky, 1990:53).

Trucking Efficiencies in a Regulated U.S. Environment

Ever since the trucking industry was first brought under regulation in 1935 by an Act of Congress, some economists have argued that under economic regulation the trucking industry was not working well, and the industry would work better in a deregulated environment (Report on Joint Conference, 1980:243). Economists also claimed that regulation of the trucking industry added billions of

dollars to the nation's transportation bill, competition would be suppressed, and regulation would lead to excessive empty truck backhauling (Report on Joint Conference, 1980:243). Those against deregulation of the trucking industry believed inventory levels would have to increase $19.5 billion (45 days worth of sales) to take care of a less dependable trucking industry should deregulation occur (Report on Joint Conference, 1980:244). Others quoted a report by the ICC which concluded that 97 percent of the empty-truck backhaul movements were unavoidable (Report on Joint Conference, 1980:244).

In 1977, the Federal Energy Administration and the Interstate Commerce Commission conducted a joint study on the impact of hauling commodities one-way with empty backhaul. The below figures show a significant loss in efficiency of mileage, gas, labor and expense (Delaney, 1988:5):

Category	Empty Miles Percentage
For-hire Motor Carriers	16
Exempt Commodity Carriers	27
Private Motor Carriers	30

Toto Decision. The Toto decision was a 1978 ruling by the Supreme Court for the Toto Purchasing and Supply Company (Stock and Lambert, 1987:196). This Supreme Court ruling allowed private carriers to apply to the ICC for the right to become a common or contract carrier and to seek business from other shippers to reduce empty back-haul milage (Stock

and Lambert, 1987:207). The conditions to this ruling were that the carrier must conduct their for-hire and private carriage business separately and maintain separate records for both (Moskal, 1979a:81). Using the Toto decision as authority to use its private truck fleet as a common carrier, Frito-Lay, a manufacturer of snack foods, eliminated five million empty backhaul miles annually and increased its annual revenue by $6 million (Schweitzer, 1988:3).

The Push for Deregulation. With established routes, and decreased uncertainty (because of ICC barriers to entry of new competition), the regulated trucking industry did not seek to be efficient. Common and contract carrier trucking firms flourished under ICC controlled and authorized routes in which only a limited number of other certified trucking firms could operate. Under the rate bureaus' collective price setting system the trucking firms were allowed a "fair" rate of return, despite how poorly the firm was operated. The ICC was required to "authorize revenue levels sufficient to return operating expenses plus a reasonable profit" (Guandolo, 1981:118) without any specific formula. With this "fair" rate of return the regulated trucking industry did not seek to become efficient or competitive (Moore, 1988:4). The ICC was considering how to deal with this idea of "fair" rate of return "by using an industry-wide standard rate of return based on investment or on equity" (Guandolo, 1981:118). Efficiency had to be

reintroduced into the trucking industry. According to Transportation Secretary Brock Adams, "we need to do away with the sand in the gears" (Trucking Deregulation, 1978:66).

Efficiency in a Deregulated U.S. Trucking Environment

Although the deregulation of the trucking industry became law under the 1980 Motor Carrier Act, the ICC began the deregulation process a few years earlier by using a more liberalized interpretation of U.S. transportation policy. The Toto decision demonstrated the shift in policy that was to quickly spread into other areas of the regulated trucking industry. Daniel O'Neal, former Chairman of the Interstate Commerce Commission, stated changes were brought about to increase efficiency and because of the need to modernize while placing the maximum reliance on competition and minimum reliance on regulation:

> The reasons for that are simple. We see a need for downward pressure on rates, a need for better service, and a need for improved efficiencies among the transportation companies. There's a very good chance that more competition and less regulation will help accomplish all of that. (O'Neal, 1979:72)

After deregulation, the trucking industry was quickly forced to become more efficient or be forced out of business. "Carriers with annual revenues ranging from $10 million to $600 million have gone under and we are perhaps only half way through the shakedown" (Waters, 1988:59). Companies who did not know their cost of operating before

deregulation had a hard time adjusting to new competitive rates and setting their own price discounts. Only about half of the top 15 carriers conducted an in-depth cost analysis and had an idea of their actual expenses (Rakowski, 1988:17). In order to cut cost and increase efficiency, many firms tried to cut unionized workers. Non-union workers earned 20-25 percent per hour less and allowed management more flexibility in changing the firm's operations (Kahley, 1982:43).

Efficiency did improve. The empty backhaul decreased for all types of carriers with private carriers benefiting the most with only 10 percent empty backhaul miles (Delaney, 1988:5). The private carriers had reduced their empty backhaul mileage by 20 percent. This new efficiency not only meant a decrease in the amount of equipment, in 1985, there were 22 percent fewer tractors operating in the trucking industry than it had in 1980 (Delaney, 1988:5), but also a decrease in prices which was passed on to the customer.

> Between 1982 and 1986, U.S. shippers benefitted from cost reductions of at least 20 percent for trucking services. That amounts to $27 billion of the cost reduction of intercity truck traffic operated by for-hire, private, and shipper-affiliated motor carriers. (Delaney, 1988:5)

Trucking Failures. The new competitive nature of the trucking industry forced prices down and inefficient companies out. In fact, from 1980 to 1987 over 3,500

trucking firms went bankrupt (Ettorre, 1988b:T8). Figure 3 provides an overview of trucking business failures.

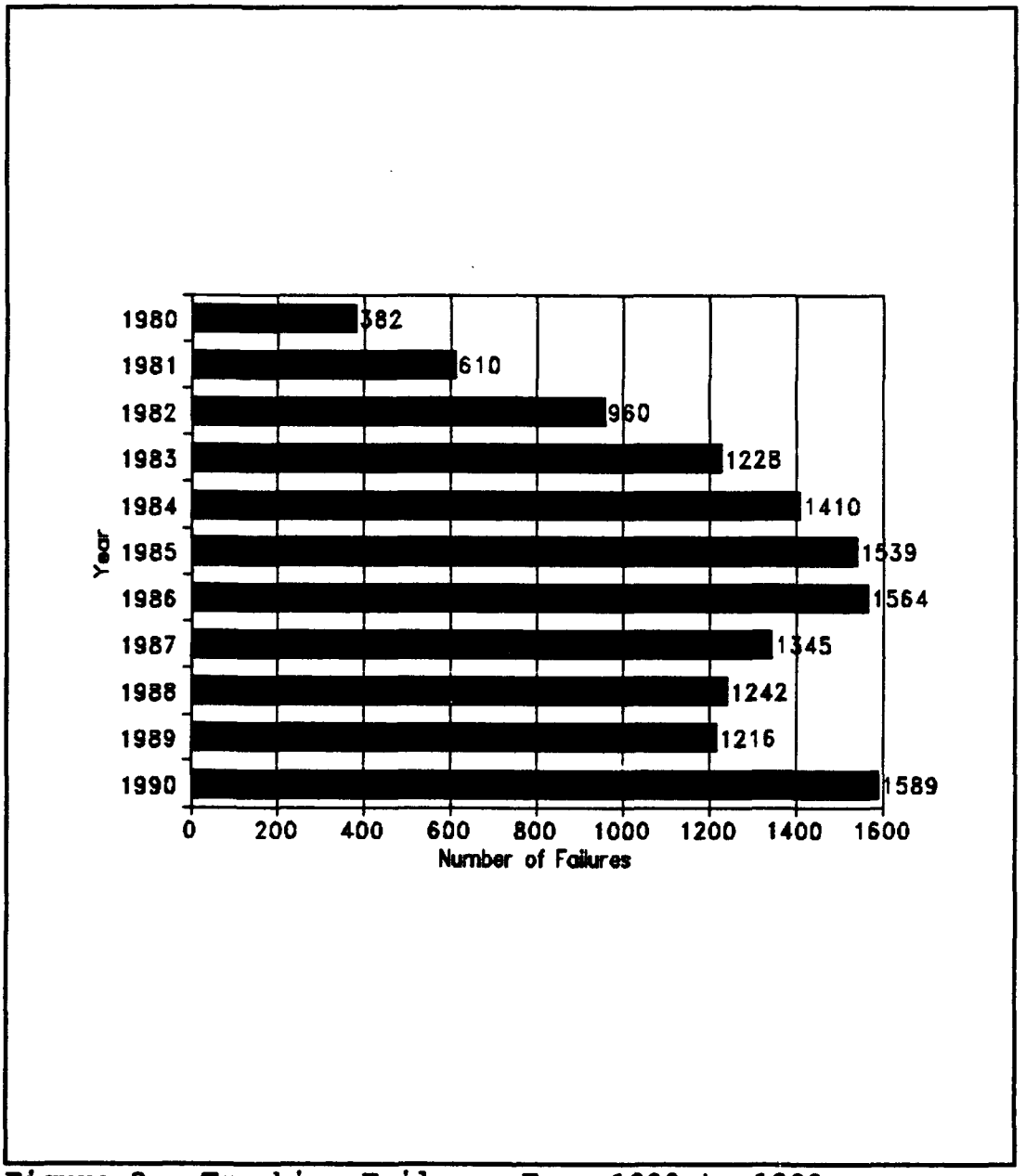

Figure 3. Trucking Failures From 1980 to 1990. (Authors' graph of raw data from Dun and Bradstreet, and American Trucking Association)

Many felt these failed trucking firms were previously overly protected by economic regulation, and they deserved

to go under because of an inability to compete in the open market (Glaskowsky, 1990:28). To become more efficient, trucking firms turned to computers to track scheduling, cost, and rate fluctuations. The trucking firms even developed strategic alliances with other modes of transportation for increased efficiency and service options. The trucking industry established expanded intermodal transportation agreements with the railroads to become more competitive. With these strategic alliances, trucking became more mobile and could readily enter into new markets.

"Logistics experts and economists have estimated that the savings resulting from [trucking] deregulation have averaged $38 billion annually" (Canny and Rastatter, 1988:1). This annual savings is based on trucking efficiency and changes in logistics strategies. According to Robert Delaney, 1981 was the peak of U.S. logistics inefficiency (Delaney, 1988:2).

The total logistics cost in 1981, as a percentage of Gross National Product was 14.7 percent with transportation making up 8 percent of the cost (Schulz, 1991:19). Efficiency increased year after year. By 1987, total logistics cost fell to 10.8 percent of the GNP with transportation accounting for 6.4 percent of the total cost (Delaney, 1988:2).

This 10.8 percent of the total GNP (in adjusted 1987 dollars) amounted to $487 billion dollars (Delaney, 1988:2).

> An independent study of 300 producers and distributors by Herbert Davis found that 1986 logistics cost were 21 percent below the level of 1980. After deducting the impact of interest rates, the cost reduction benefit to U.S. producers, distributors, and ultimate consumer ranged between $60 and $90 billion. The contribution to our economic recovery has been impressive. (Delaney, 1988:2)

Inefficiencies Remaining Due to State Regulation. "The financial cost of intrastate regulation coupled with lost productivity and inefficiency make it one of the most important transportation issues of the 1990s" (Richardson, 1990:19). The U.S. trucking industry is only two-thirds deregulated. "Because of the Motor Carrier Act of 1980, there is a misconception afoot that the trucking industry has been thoroughly deregulated" (Ettorre, 1988a:T19). Although the United States reduced the regulation required for the trucking industry between two or more states, over two-thirds of the industry remain regulated (Delaney, 1988:6). "Forty-three states continue to regulate road transport within their borders" (Delaney, 1988:6). Delaney states that gains of $20 to $25 billion could be saved if the United States deregulated transportation entirely (Delaney, 1988:6). States' control over route authority within their borders has led to great inefficiencies in the U.S. trucking industry. "An estimated 60% of all trucking tonnage does not cross states lines and thus, does not benefit from federal deregulation" (Ettorre, 1988a:T19).

The states' regulation of the trucking industry has detracted from some of the gains of federal deregulation.

State regulation has led to inefficient decisions for shippers and higher transportation cost (Canny and Rastatter, 1988:3). Canney and Rastatter provide a good example:

> It has been virtually impossible to obtain authority to operate within the state of Texas, for the past 40 years, with the result that trucking rates within Texas are about 30 percent higher than interstate rates for comparable distances. To avoid paying higher rates, many Texas shippers choose out-of-state suppliers, and others have set-up their distribution centers in states adjacent to Texas. (Canny and Rastatter, 1988:3)

With regulation of the trucking industry within its borders, the state can control the trucking industry. "In a hundred other ways, large and small, trucking is saddled with perhaps the tightest controls on any industry, except for the nuclear and chemical industry" (Ettorre, 1988a:T22). Not only can states regulate the routes and rates, but they can set safety requirements, size and weights limitations, and licensing and registration fees for trucks (Ettorre, 1988a:T22). In 1985, the Department of Transportation stated the trucking industry paid $1 billion for state licensing and other procedural requirements (Feldman, 1986:44).

The states can also control what type of equipment the carriers can operate on the states' roads. Many states have prohibited oversized and overweight trucks. This leads to uneconomical use of equipment and capacity. "If we can't use the equipment that's most economical, we'll lose that

efficiency and the costs will have to be passed on to the customer" (Bradley, 1989:68).

> Many localities prohibit 48-foot long, 120 inch wide trailers and tandems from roads leading to truckers' customers and terminals, despite Department of Transportation legalizations of the rigs. (Bradley, 1989:68)

State permit requirements add additional burden for the carriers. The Motor Carrier Act of 1980 gave carriers the right to operate in all 50 states, however, "you have to have 200 pieces of paper to run the 48 [contiguous] states, its a tremendous burden" (Bradley, 1989:68). Carriers are hopeful that interstate pacts or federal intervention can smooth out states' regulatory process and make the system more uniform. "There's no consistency. Carriers have to deal with the various laws. Its impossible to know every one of them" (Bradley, 1989:68).

Despite the inefficiencies to the trucking industry, the states do not wish to relinquish regulation of trucking within their borders because of the taxes they can place on the industry. These taxes can be in the form of registration fees, state fuel tax, heavy vehicle use tax, property tax, sales tax, and state decal tax (Ettorre, 1988a:T22). The total annual highway user fee for the states averages $3,557 for each truck (Ettorre, 1988a:T20). "Every year the [trucking] industry is presented a $16-billion bill for operating taxes, $6.3 billion from the federal government and $9.7 billion from the 50 states"

(Ettorre, 1988a:T22). To pay for these taxes, the carrier passes most of the cost off to the shipper.

Market Share and Concentration in the U.S. Trucking Industry

Market share and concentration is important because it demonstrates how an industry can be dominated by a small number of firms. "The concentration ratio can be thought of as a broad indicator of competitiveness" (Gwartney and others, 1982:313). Usually the concentration of the market is determined by the top four or top eight firms in the industry. The higher the concentration percentage, the more likely the firms of the industry will collude while setting rates and services against the interest of consumers (Gwartney and others, 1982:313).

According to Robert W. Kling and his study of the trucking environment since deregulation, concentration within the market of trucking is caused by the following:

> In the freight industry of the 1980s a large shipper can threaten a common carrier with a switch to contract carriage or private carriage much more easily than under the old system. This pressure to offer preferential rates can only be sustained by the carrier if it can subsidize that business by charging discriminatory rates for other business. The ability to do so requires a certain size and scope of operations, so increased carrier size within the market is the natural result of this pressure. (Kling, 1988:1208)

The following are just three ways of many to evaluate the market share and concentration of revenue in the trucking industry:

1. Market share and industry concentration of the Less-than-Truckload (LTL) sector;

2. Market Share and industry concentration of the Truckload (TL) sector; and

3. The market share and industry concentration of the for-hire industry as a whole.

The LTL and TL portion of the industry has been separated because "the two groups are so dissimilar in their operations and the markets they serve that they constitute two very distinct sub-industries" (Glaskowsky, 1990:33). The LTL carrier requires a network of terminals, large truck fleet, and large labor force. The capital required to get into the LTL business is significant, thus LTL firms maintained a barrier to entry that TL firms had lost. LTL firms are shippers who provide service in less than truckload increments and charge the consumer by bulk or weight of the commodity. In order to recreate stability in the trucking industry, the stronger firms (especially the LTLs) began to consolidate, hoping to gain economies of size (if possible) and achieve a cost advantage in the market. The concentration of trucking firms forced many of the smaller and weaker firms out of the business. Truckload (TL) firms stayed competitive because they had a lower fixed cost (no large network, large fleet, or extensive labor requirements) and could pass this lower cost to the consumer.

<u>LTL Sector Market Share and Concentration</u>. Since the LTL sector requires an extensive terminal network, labor, and equipment, there is considerable potential for economic concentration (Delaney, 1988:33). Between 1977 and 1987,

the top four LTL firms increased their market share of the revenues from 18.3 percent in 1977 to 36.9 percent in 1987, an increase of 102 percent (Corsi and Stowers, 1991:7). The top eight LTL firms had an increase of 85.1 percent of the total LTL revenues, or an increase from 26.4 to 48.9 percent (Corsi and Stowers, 1991:7). The twenty top LTL firms had a increase of 64 percent of the market revenues, from 40.6 to 66.6 percent (Corsi and Stowers, 1991:7).

Glaskowsky (Table 1) offers similar numbers representing the degree of industry concentration of the LTL industry:

TABLE 1

INDUSTRY CONCENTRATION IN THE LTL SECTOR
1978 TO 1990

	Largest Four Carriers	Largest Ten Carriers	Largest Twenty Carriers
1978	20%	39%	43%
1985	35%	60%	67%
1987	40% / 65%[a]	40%	73%
1990	40% / 65%[a]	64%	73%

[a] Figure increases to 65 percent if United Parcel Service is included in estimates.

(Glaskowsky, 1990:34)

Truck Load (TL) Sector Market Share and Concentration. The market share and concentration of the TL sector is the other end of the spectrum of what occurred in the LTL sector

(Glaskowsky, 1990:35). Because of the lower barrier to entry for the TL sector of the industry, thousands of new carriers entered the market raising the level of TL firms to presently more than 40,000 (Trucking Industry, 1991:R47).

> Further, there is no possibility of economic concentration in the TL sector because it does indeed come very close to meeting the classical economic definition of pure competition, including easy entry and exit coupled with high variable cost. (Glaskowsky, 1990:35)

Competition In the For-Hire Trucking Environment. Another way to evaluate the degree of competition in the deregulated motor carrier environment is to analyze the altered market position of the dominant for-hire trucking firms. The for-hire trucking segment includes both common and contract carriers. Following deregulation, the numbers of for-hire trucking companies increased 150 percent.

Table 2 examines these changes in the carrier market since 1980. Of the top 100 for-hire carriers in 1980, only 44 have remained in the top 100 in 1990. Of the remaining 56 carriers, 10 no longer remained in the top 100 and 46 went out of business. Nine of the companies who went out of business were consolidated into larger firms, and six of these parent companies have since ceased to operate. This poor showing demonstrates the effects of decreased barriers to entry (discussed earlier) on the concentration of the industry.

Only eleven of the top 25 for-hire carriers in 1980 were also in the top 25 in 1990. Eleven of the top 25

carriers of 1980, have since gone out of business. To demonstrate the poor upward mobility of carriers, only six carriers that were ranked between 26th and 100th in the 1980 top 100 have moved into the top 25 carriers of 1990. Furthermore, one of these carriers which had moved up went out of business in July 1991.

TABLE 2

TURNOVER OF THE TOP 100 U.S. FOR-HIRE CARRIERS, 1980 TO 1990

Top 100 Carriers		Ranking in 1980				
		1 to 25	26 to 50	51 to 75	76 to 100	Total
RANKING IN 1990	1 to 25	11	3	3[a]	0	17
	26 to 50	3	5	2	3	13
	51 to 75	0	1	3	2	6
	76 to 100	0	2	2	4	8
	Sub Total	14	11	10	9	44
	100 +	0	2	2	6	10
	Out of Business[b]	11	12	13	10	46
	Total	25	25	25	25	100

Notes:
a. One carrier closed in 1991, this number is not represented in the Out of Business column.
b. Three carriers were consolidated into other carriers. Six other companies were consolidated with other carriers, and the parent company went out of business.

Nine newly organized (since 1980) carriers have entered the top 100 carriers of 1990. Two newly organized carriers are in the top 25. Two newly organized carriers are in the 26 to 50 ranking. Three newly organized carriers are ranked between 51 and 75, and the final two newly organized carriers are in the 76 to 100 top carriers on 1990.

Market Share of the Top 100 Trucking Industries (1990). According to Standard and Poors' Industry Surveys, motor carriage in 1990 was a $260 - $270 billion industry (Trucking Industry, 1991:R45). In fact, trucking exceeds its nearest competitor, railroads, by nine fold (Trucking Industry, 1991:R45). In 1990, the for-hire trucking segment generated $45 - $55 billion in revenues (Trucking Industry, 1991:R45). Private carriers made up $80 - $85 billion (Trucking Industry, 1991:R45), and exempt carriers made up the remaining industry revenues.

The combined 1990 revenues for the top 100 for-hire trucking firms was $35.9 billion (Ponzani, 1991:18). Using the average of the Standard and Poor's 1990 estimate of annual revenue of for-hire carriers in 1990 of $50 billion and the revenues for the top 100 for-hire carriers, the top 100 for-hire trucking firm had 36/50 or 72 percent share of the market revenues. The top 5 revenue leaders (United Parcel Service, Yellow Freight, Consolidated Freightways Motor Freight, Roadway Express, and Overnite Transportation Company) accounted for 36 percent of the entire for-hire trucking market share.

Logistics Implications for Deregulated U.S. Trucking

When asked about the logistics implications of a deregulated U.S. trucking environment, Associate Editor of *Transportation & Distribution* Magazine, John L. Ettorre, summed up the feeling of the logistics community: "the old adage was the more things change the more they stay the same; the new adage is the more things change, the faster they change" (Ettorre, 1988a:T23).

"The challenge for motor carriers in the next decade is to continue efficiency improvements and to find new markets to serve" (Corsi and Stowers, 1991:26). According to Stock and Lambert, the major transportation management strategies after U.S deregulation included pricing/negotiation, routing and scheduling, service offerings, competition and market activities (Stock and Lambert, 1987:267). From a shipper's standpoint the inbound and outbound transportation; carrier selection; use of brokers; private carriage/leasing; and shipper carrier cooperation were the most important considerations in management strategies (Stock and Lambert, 1987:267).

For the purpose of this thesis we are going to cover the logistic implications of U.S. deregulation and its effect on private carriage, brokers, inventory control, customer service, and shipper/carrier cooperation. The other transportation management strategies mentioned by Stock and Lambert of price setting, routing, and competition have already been covered in this chapter.

Logistic Strategies of Private Carriage. The Motor Carrier Act of 1980 allowed private carriers to be more creative in their management techniques toward cost savings and operating philosophies (Corsi and Stowers, 1991:26). Firms looked for new ways to conduct business, save costs, and enter new markets and organized private fleets.

"The relaxed regulatory climate has also spawned new concepts in trucking and logistics management" (Schweitzer, 1988:1). Shippers could use a private motor carrier fleet offering a wide range of services tailored to the needs of the shipper. Private carriage also provides greater reliability of delivery and flexibility in scheduling shipments -- "essential for those manufacturers using Just-In-Time (JIT) inventory control" (Trucking Industry, 1991:R45). The Motor Carrier Act, section 9, expanded the route and service capabilities the private carriers could provide for the firm.

Private carriage could acquire supplemental for-hire route authority as common or contract carriers. A second option available since 1984 for the private carrier is to trip lease equipment and drivers to a regulated for-hire carrier, who uses the firm's assets to haul freight for another shipper (Schweitzer, 1988:3). This trip lease allows the firm owning the private fleet to eliminate empty miles on their fleets and make money by leasing resources.

Compensated intercorporate hauling is the third method a private carrier can use to manage the cost of its private

fleet. Compensated intercorporate hauling is when the private carrier hauls freight on a compensated basis for other members of a corporate family (Schweitzer, 1988:3). Private carriage can only be done for the corporate subsidiaries that are 100 percent owned by the parent company (Schweitzer, 1988:3).

Finally, private carriers can organize as a separate transportation subsidiary. This means the firm can have its private fleet operating as an unregulated private carrier while hauling freight for the parent or subsidiary. Then the firm can change its operations to a for-hire carrier when hauling for shippers outside the firm's ownership or control (Schweitzer, 1988:3).

According to research by A.T. Kearney, the new options available for private carriers in the deregulated trucking environment reduced the percentage of empty backhaul miles for the private fleets (Schweitzer, 1988:3). Table 3 shows the percentage of firms using the new options available to the private carriers from 1984 to 1986, and the reduced percentage of empty backhaul miles the options averaged for 1985.

Despite the success of these new options using the firm's private fleets, the traffic manager must realize that these operating options are not always viable. Generally, the above private carrier options are available only in interstate transportation. "If additional economies are to be squeezed from private truck fleet operations, they will

TABLE 3

PERCENTAGE USE OF NEW OPERATING OPTIONS
BY PRIVATE FLEETS, AND REDUCTIONS IN PERCENTAGE
OF EMPTY BACKHAUL MILEAGE

	1983	1984	1985	1986	Percent[1]
Supplemental For-Hire	19%	27%	33%	37%	2%
Compensated Intercorporate Hauling	45%	49%	49%	56%	2%
Trip Leasing (Began 1984)	N.A.	26%	21%	23%	1.5%
Separate Transportation Subsidiary	17%	17%	14%	17%	N.A.

Note: [1] Percent of Reduction in Empty Backhaul for 1985.

(Schweitzer, 1988:3-4)

depend on additional deregulation at the state level" (Schweitzer, 1988:2). Additionally, "the chief negative in operating a private fleet is the need for a firm to divert its capital and energies in an endeavor unrelated to its core business" (Trucking Industry, 1991:R45).

Firms have gone in both directions, of building up their private fleets, or eliminating their private fleets. "Some firms have retracted or eliminated the private fleet in favor of outside carriage, while other companies have added to fleet operations and solicited outside freight themselves" (Schweitzer, 1988:6). In a deregulated environment, many economists and trucking industry analysts anticipated firms in manufacturing would reduce the capital spent in their distribution departments. Items like

spent in their distribution departments. Items like tractor-trailers, truck maintenance facilities, and personnel would be reduced to put capital back into the production, sales, and research functions of the core business (Schweitzer, 1988:1). In this deregulated environment, the better negotiating ability of the shippers, coupled with more competitive rates and service options offered by common and contract carriers were expected to reduce shipper's reliance on private truck fleets (Schweitzer, 1988:1). However, under deregulation "the decision to operate a private fleet is more of a strategic one: to obtain superior service that can provide the fleet operator with a competitive edge" (Trucking Industry, 1991:R45). "The experience since 1980, however, has not substantiated the predictions of a reduced role for private fleet operations" (Schweitzer, 1988:1).

Logistic Strategies and Freight Brokers. "The impetus to growth in the freight brokerage industry was deregulation" (Trucking Industry, 1991:R45). According to Stock and Lambert, a broker is licensed by the ICC and is "someone who arranges for the transportation of products and charges a fee to do so" (Stock and Lambert, 1987:247). The following list specifies the ICC rules the broker must follow and defines what a broker does:

1. The broker can control almost any shipment unless the shipment is owned by the broker.

2. The record of broker transactions must be filed at the ICC and available for review by the customer.

3. The broker cannot represent its operations as a carrier service.

4. The broker can serve as a carrier, consignor, or consignee (Stock and Lambert, 1987:247-248).

The ICC further broke down the roles of the broker as follows:

> They [brokers] provide valuable information to carriers on price and service availability, they daily arrange for the pickup and delivery of freight, and participate in scheduling, collection, billing, damage evaluation and other functions. They serve both large and small shippers, sometimes performing tasks of a small shipper's traffic department. (Pearce and Brown, 1988:3)

Pearce and Brown, who conducted informal inquiries of various brokers, defines the duties of the brokers as follows:

1. Performs shipper-carrier matchups.

2. Provides shipment data to carriers and shippers.

3. Works with clearing freight through customs.

4. Resolves freight claim disputes.

5. Performs freight bill auditing services to determine and analysis a shipper's traffic cost.

6. Conducts analysis of shipper distribution patterns to assist in establishing a distribution system.

7. Manages warehouse operations.

8. Links truck, rail, ocean, and air transport in a variety of combinations (Pearce and Brown, 1988:3-4).

Although regulated by the ICC, brokers were not subject to extensive controls of corporate structure or rates (Pearce and Brown, 1988:1). This limited regulation allowed the role of brokers to expanded rapidly (Waters,

1988:58). Prior to deregulation the brokers were centered in the exempt carrier sector of the trucking industry (Stock and Lambert, 1987:246-247). After deregulation the brokers were able to expand into the for-hire carrier sector of the industry (Pearce and Brown, 1988:2). With this increase of authority, the numbers of brokers increased as well, from less than fifty brokers in the late 1970s to over 5,900 brokers in 1988 (Pearce and Brown, 1988:2). The following table (Table 4) demonstrates the large increase in licensed brokers.

TABLE 4

GROWTH OF LICENSED BROKERS
(1982 TO 1988)

1982	1983	1984	1985	1986	1987	1988
952	1,679	2,933	4,451	6,039	6,042	5,908

(Pearce and Brown, 1988:2)

Along with the increase in the number of brokers, the brokers' revenues also increased. Surveys by private organizations and estimates by the Department of Transportation indicate third party intermediaries (brokers) account for 10 - 20 percent of the interstate truck traffic (Pearce and Brown, 1988:2).

> If these estimates are accurate, brokers may handle up to $20 billion of truck shipments annually in the 'regulated' [within the states] transport market, up from a few hundred million in 1980-81. (Pearce and Brown, 1988:2)

Although the numbers of brokers appears to have levelled out, growth rates of successful brokerage firms exceed 20 percent annually (Pearce and Brown, 1988:2).

Smaller carriers have turned to brokers to achieve a cost savings by not maintaining a distribution department. Smaller shippers can also save cost by using the broker's knowledge of carrier performance, availability, and negotiation ability to provide a carrier large volumes of freight (Pearce and Brown, 1988:6). "Shippers have cut back on their traffic departments and shifted emphasis from knowledge of regulation and regulated tariff offerings, to negotiating capabilities" (Pearce and Brown, 1988:6).

Inventory Strategies in a Deregulated Environment. According to Delaney, logistics is the management of inventory -- whether in motion or at rest (Delaney, 1988:1). Inventory is in motion when it is being transported to the consumer or transferred during production. During storage, inventory is at rest. With the following statement, Delaney points out the objective of the logistician concerning inventory:

> The objective of the logistician is to manage the most efficient investment in inventory, while supporting production or merchandising operations on one hand and maintaining customer service on the other. (Delaney, 1988:1)

In the deregulated trucking environment, new concepts could be used to control inventory. One such inventory control tool is Just-In-Time (JIT).

According to Stock and Lambert, JIT inventory is "a tool to integrate and control the entire process of steps by which materials are transformed into products" (Stock and Lambert, 1987:448). JIT operates under the premise that anything over the minimum amount of resources of material, machines, and manpower required to add value to a product is considered wasteful (Stock and Lambert, 1987:448). As opposed to Just-In-Case, JIT eliminates excess inventories manufacturers must keep on-hand.

JIT inventory control could not be efficient or even possible without deregulation of the transportation system. "Deregulation of transportation was required before just-in-time manufacturing and on-time delivery services could be implemented" (Delaney, 1988:4). JIT required the support of customized, transportation services. Throughout the 1970s, U.S. public policy and regulatory law frustrated the formation of customized, controlled trucking services (Delaney, 1988:4). Although contract and private carriage were available to conduct JIT during regulation; trucking deregulation and the new competitive environment provided the impetus for this service to develop.

The use of JIT inventory control proved to be mutually beneficial to the carriers, manufacturers, and the shippers. "Stated simply, transportation and information have replaced inventory" (Delaney, 1988:4). Carriers benefitted from a steady, sure volume of business. Shippers and manufacturers were able to reap the benefits of a JIT

system, as demonstrated by the following results Harley Davidson experienced after implementing JIT:

1. Inventory turnover ratio for raw materials and goods increased from 5.9 in 1982, to 15 in 1984.

2. Production time setup reduced by 75 percent.

3. Significant reductions in inventory stockouts.

4. In-process inventory cost was reduced from $23 million in 1982 to only $8.5 million in 1984.

5. Reductions in defect and warranty claims by customers (Stock and Lambert, 1987:449).

With JIT, the trucking industry and the manufacturers benefit from the process. The following statement sums up the partnership of JIT between the manufacturers and the trucking industry:

> The result of truckers taking on JIT delivery: that it is a value added service, it may increase transportation cost -- but it will lead to substantial savings in inventory. Just-in-Time production methods have redefined freight carriers from a simple delivery business to the manufacturer's warehouse on wheels. (Bradley, 1989:69)

Logistics Strategies of Customer Service. After deregulation carriers were forced into a highly competitive market, carriers initially cut prices to "survive first and prosper later" (Glaskowsky, 1990:34). During the early 1980s, price became just as important as quality of service in selection of carriers by shippers. In the late 1980s, however, truckers reemphasized service, "recognizing that the added cost of providing superior service will be more than compensated by the premium rates they will be able to command" (Trucking Industry, 1991:R50). Due to the

negotiating power of the buyers, customer service became almost paramount to success of the carrier.

> Successful carrier firms have recognized that transportation is more than just moving goods from one point to another -- it involves the delivery of transportation/logistics services that meet the needs of customers. Such an approach has helped differentiate one carrier from another. (Stock, 1989:27)

When the buyer was forced to choose between two carriers with similar prices, each carrier tried to differentiate their service with the other. Differentiation is a strategy of providing a product or service which is valued by the organization's customer base. Differentiation can be faster shipment times, better intransit visibility of cargo, or even superior customer service. "Some of the ways motor carriers hope to differentiate themselves include high on-time performance, low claims experience, shipment tracing, and billing accuracy" (Trucking Industry, 1991:R50).

The key to success is for carriers to define a well-developed strategy as opposed to a nebulous, undefined one (Corsi and Stowers, 1991:25). In order to compete with other carriers in a deregulated environment, "carriers must become experts in marketing, pricing, negotiating, routing and scheduling, employee relations, and many other areas to survive" (Stock and Lambert, 1987:225). Truckers made efforts to inquire what their customers needed. "First you have to identify what the customer wants, not sell him what you think he wants" (Bradley, 1989:69). Transportation

buyers can expect to have more options and more control over their trucking services in a deregulated environment (Bradley, 1989:70).

The carrier industry got serious about customer service when customers begin demanding quality in specific and measurable ways (Bradley, 1989:70). On customer service, transportation carriers tend to be graded in the following order: "reliability of service, competitiveness of price, operating management experience, customer service skill, and financial strength" (Delaney, 1988:9). These were the areas which were neglected and/or non-existant during trucking regulation.

Carriers were forced to quickly adjust to this new environment of deregulation and customer service. "Transportation companies that have succeeded since deregulation have a number of attributes in common, they got rid of businesses that did not do well" (Delaney, 1988:9). What carriers performed well, they developed into their niche and tried to develop this niche even further. Under the new route rationalization permitted under the 1980 Motor Carrier Act, carriers were able to operate in the 48 contiguous states and serve whatever interstate route they wished to serve (Glaskowsky, 1990:34). With deregulation, the carrier was free to operate a larger market if it wished. Deregulation allowed the firm to seek more efficient carriers and reduce the number of motor carriers with whom the firm would do business.

Partnerships will become increasingly important. "Five years from now it [partnerships] will be the only way of doing business" (Bradley, 1989:69).

> Long-term relationships with carriers will be the rule rather than the exception, because it will give the customers more leverage and a feeling of real security to deal primarily with one carrier. (Bradley, 1989:69)

One shipper cut down the number of motor carriers with it regularly did business from 103 to 27 by 1986, and this was further reduced to 19 by early 1989 with hopes to be down to 12 in the next few years (Glaskowsky, 1990:49).

The drawback to the reduction in the number of motor carriers means the number of carriers operating in the market place may be reduced. "The nation will probably wind up with a half dozen less-than-truckload carriers" (Waters, 1988:59). Shippers who can better negotiate with the carriers will be better off than those who can not. "They [large carriers] are better able to cope with a rate jungle than are small shippers; some thrive on it" (Glaskowsky, 1990:53). The same applies to shippers who do not have the leverage of large shippers.

> One implication of this will be considerable distress for manufacturers and distributors which will not have much bargaining power because of their restricted size. This in turn, will ultimately have profound influences of the location of industry and distribution centers. (Waters, 1988:60)

The large shippers could use their leverage to better negotiate rates and guaranteed volume for the carriers than the smaller shippers.

> Large shippers believed that they had long cross-subsidized smaller shippers and/or communities to some degree, and that it was about time their large, steady and predictable traffic patronage was recognized in the form of deserved lower rates. (Glaskowsky, 1990:47)

Since deregulation large shippers have received large discounts from the trucking industry, but "being offered discounts of 40 to 50 percent certainly exceeded their fondest expectations" (Glaskowsky, 1990:47). At the same time small shippers could get discounts of around 10 to 20 percent off the retail tariff rate (Hoffman, 1986:16).

Shipper/Carrier Cooperation -- The Use of EDI. One may see from the above sections that carrier-shipper cooperation is paramount to success in the trucking industry, or for that fact, the transportation industry. Although EDI was possible during the regulated trucking environment, the increase in markets in which the carriers could now operate; new methods of tracking shipments and making the process more efficient became necessary. An off-shoot of the customer service, quality, and the JIT revolution has been the booming demand for information, a demand carriers are meeting with advanced communication systems. To meet this new demand, Electronic Data Interchange (EDI) is being used (Bradley, 1989:70).

Logistics is now at the forefront of new opportunities for the firm to increase profits and customer service. The largest area to cut expenses and increase customer service comes from the transportation portion of logistics.

Transportation offers more room for savings in the logistics arena, because it is the most labor intensive and involves mountains of paperwork. Customer service is furnished by the time and place utility provided by transportation. EDI has allowed the transportation industry to cut down on this labor and paperwork (Stock and Lambert, 1987:9).

Before discussing EDI and its issues, it is important to know why transportation and computer technology have gained this relatively new importance in the logistics field. According to Gregory B. Halter, CEO of the Electronic Data Interchange Association, EDI represented the largest impact on cutting overhead in this decade (Halter, 1991:3).

EDI and the Trucking Industry - Benefits. "Companies not doing business electronically by the mid 90s aren't going to be in business" (Andel, 1991:31). According to *Industrial Distribution* magazine, Electronic Data Interchange "involves the electronic transfer of purchase orders, quotations, bills and correspondence between business partners either in direct, computer-to-computer fashion or through a third party network" (Zurier, 1991:37). The key to EDI is understanding whether or not your company can benefit from EDI. The following list identifies the general industry characteristics that would benefit in using EDI:

1. Handles a large volume of repetitive standardized forms, request, and reports.

2. Industry operates on a very tight margin.

3. Industry faces strong competition requiring strong quality and customer service levels.

4. Operating environment is very time-sensitive. This is critical in Just-In-Time operations.

5. EDI use is requested by key suppliers or buyers.

6. EDI can be implemented at a relatively low price (Steltzer, 1990:37).

As one can see, these general industry characteristics all apply to the transportation industry. Specifically, the transportation industry can use EDI to improve primary aspects of their business: purchase orders, invoices, quotations, shipping information (routing labels, customs forms, tracing), and correspondence via electronic mail. The fundamental changes will be decreased paperwork and administrative labor.

According to Margaret Emmelhainz, Assistant Professor of Marketing and Logistics, "the economic price of doing EDI can vary from relatively insignificant - say, under $1,000 for a simple PC-to-PC arrangement - to the level of a major capital investment" (Steltzer, 1990:42). The investment in EDI, whatever the cost, may reap big returns.

Bose Corporation, a manufacturer of amplifiers and loudspeakers, made a strategic alliance with a trucking firm, P.I.E. Nationwide. Bose selected P.I.E. Nationwide because it had "the most advanced EDI system in the industry" (Bowman, 1989:87). In fact, Bose and P.I.E. Nationwide using EDI were so successful, they were able to

break into the Japanese and German automobile industries within the United States as well as into the international market (Bowman, 1989:88).

Bose is one of the few American companies openly competing in the Japanese market and claims EDI (and of course a quality product) helped achieve the competitive edge (Bowman, 1989:88). EDI had made this possible because both the manufacturer and the shipper receive the purchase order for goods at the same time, allowing the shipper to plan ahead and consolidate loads.

Chemical Leaman, a tank truck carrier, and DuPont also benefitted from EDI. "Chemical Leaman knows every order from the time E.I. DuPont receives it. The result is improved distribution efficiency and greater service reliability" (Bowman, 1989:88). EDI also allowed the companies to rapidly transmit special requirements. All the required information could be printed on a request form and quickly passed down to the lowest levels faster than routine correspondence.

U.S. Trucking Industry Summary

Government regulation impacted every facet of the U.S. trucking industry. Federal controls over the industry directly influenced the routes, price setting methods, and concentration of the industry. These controls as a whole determined how efficient the industry would become. One surprising fact about the regulation of the trucking

industry is that less than 25 percent of the industry revenues came from operations regulated by the Interstate Commerce Commission (ICC). Just before deregulation, the trucking industry received about $110 billion per year (1976) to ship commodities; ICC regulated carriers contributed $26 billion of that amount (Trucking Deregulation, 1978:63). Yet in 1977, "trucks regulated by the ICC carried about 40.9 percent of the total tonnage of intercity freight moved by trucks in the United States" (Report on Joint Conference, 1980:242).

Through the Motor Carrier Act of 1980, the interstate trucking industry was deregulated. However, the states did not relinquish their regulatory control over intra-state trucking. States wished to maintain tax revenues and to continue to exercise constitutional authority over intra-state trade. Currently, forty-two states still regulate trucking (Schulz, 1991:19). With not all states fully deregulated, the disparity continues to have an influence on the efficiency and location of trucking operations and of other industries.

The following paragraphs provide the reader with a summary of the regulated and deregulated United States Trucking industry.

Routes. During regulation, access to trucking routes in the United States was tightly controlled by the ICC. The ICC required carriers to justify their access to a route or market by showing public convenience and necessity and by

showing no other carrier could meet the customers' demand (Guandolo, 1981:116). This tight control over the routes by the ICC made access to new markets limited, possession of existing routes profitable, and even enabled routes to be used as collateral for bank loans.

With the routes tightly controlled by the ICC, carriers were not required to search for new markets. Small towns and isolated communities were guaranteed service. Carrier management became complacent and sought no new innovative strategies for future markets. Some firms were forced to rely on carriers who did not place emphasis on customer service, because competition for routes or markets within the industry was not strong.

After deregulation, the carriers were no longer required to demonstrate public convenience and necessity. Routes could now be rationalized based on new markets. Carriers were authorized to operate freely within the contiguous United States. Previously protected markets, such as rural communities, were concerned about loss of service, but "small towns and communities are receiving "service that is as good or better than before deregulation" (Canny and Rastatter, 1988:5).

Price Setting. Since the Motor Carrier Act of 1935, the United States regulated trucking industries' pricing levels were equal to and patterned after the rail industry and controlled by the ICC (Winston and others, 1990:4). In 1942, this pricing system was delegated to regional rate

bureaus under the Reed-Bulwinkle Act. These rate bureaus collectively set truck rates to ensure an "fair" rate of return of revenue while taking care of the weaker trucking firms in the region (Winston and others, 1990:4). With the collective price setting methods, higher prices were charged to the customer and less service provided by the carrier.

The Motor Carrier Act of 1980 also changed the price setting methods of the trucking industry. It eliminated (effective in 1984) the collective price setting of the regional rate bureaus. Prices would now be established based on what the market would bear.

Large shippers were now able to negotiate with the individual trucking firms for increased service and better rates. Discounts for the large shippers increased, thus reducing the prices by up to 40 to 50 percent (Glaskowsky, 1990:47). Service to smaller shippers and communities was expected to decrease or the shipping rates increase under deregulation. Despite deregulation and less negotiating power, the prices for truck cargo movement for small shippers and communities decreased by 10 to 20 percent (Hoffman, 1986:16). However, it is not clear whether price discrimination exists towards the small towns and shippers (as compared to the large shippers), or if the market price reflects the actual cost of doing business in a low cargo volume route.

Under this new environment of price setting, it is critical that trucking firms understand their expenses of

doing business. After deregulation, only half of the top 15 carriers had an idea of their operating cost (Rakowski, 1988:17), which made it extremely difficult for the carriers to establish reasonable rates to charge for their firm. Firms who did not have a good understanding of the expenses were pricing themselves out of business. From 1980 to 1990, 13,085 trucking firm went out of business.

Trucking Efficiencies. Regulation of the U.S. trucking industry added billions of dollars to the nation's freight bill (Report on Joint Conference, 1980:243). Restrictions on backhauls resulted in 16 percent empty miles in the for-hire segment alone. Trucking efficiencies improved drastically with the removal of trucking regulations under laws like the Toto decision (1978) and the Motor Carrier Act of 1980.

After deregulation, the combination of route rationalization, increased competition, and new price setting measures forced the industry to become more efficient. Some economists and logistics experts have stated deregulation annually saves the United States $38 billion (Canny and Rastatter, 1988:1), while others have estimated $60 to $90 billion savings (Delaney, 1988:2). These figures include reduction in empty backhauls, inventory carrying costs, transportation costs, and administrative costs.

Despite this significant savings in the deregulated interstate trucking environment, trucking within two-thirds

of the states remains highly regulated. This regulation of intra-state trucking has decreased the efficiency of the trucking industry. Almost 60 percent of the truck tonnage moved within the U.S. is not covered by federal deregulation (Ettorre, 1988a:T19). It has been estimated that an additional $20 to $25 billion could be saved if the states were to deregulate their trucking markets as well (Delaney, 1988:6 and Schultz, 1991:19).

Market Share and Industry Concentration. Market share and concentration of an industry are important, because they are key pointers to the competitiveness of an industry. According to Kling, there is a tendency of economic concentration in a free market society (Kling, 1988:1209). This economic concentration has occurred with the market share revenues of the for-hire segment of the trucking industry, especially in the Less-than-Truckload (LTL) sector. The LTL sector of the industry demonstrated some degree of economic concentration prior to deregulation (Glaskowsky, 1990:33). However, after deregulation, the LTL sector significantly increased its economic concentration (Glaskowsky, 1990:33). It is predicted the nation will end up with a half-dozen LTL carriers (Waters, 1988:59). The truckload (TL) sector of the industry was not significantly impacted by the economic concentration of the industry before or since deregulation (Glaskowsky, 1990:35).

Looking at the top 100 firms in the for-hire segment of the motor carrier industry, of the top 25 (based on revenue)

firms in 1980, only 11 remained in the top 25 in 1990. Eleven of the top 25 carriers in 1980 have since gone out of business. To fill this gap, only six carriers that were in the bottom 75 carriers in 1980 were able to move into the top 25 for 1990. Nine newly organized firms since 1980 were able to break in to the top 100 carriers for 1990. New firms have been able to break into the upper levels of the top 100 firm in the industry.

Logistics Strategy Changes. Deregulation changed the face of logistics strategies for truck carriers and production firms. One of the biggest changes is the impact on the private carrier. Private carriers were able to engage in new activities such as supplemental for-hire operations, compensated intercorporate hauling, trip leasing, and separate transportation subsidiary hauling. Supplemental for-hire usage, where private carriers act as common carriers, has doubled in use since 1983.

Usage of freight brokers has increased due to deregulation. Brokers moved from mainly handling exempt carriers to covering the entire for-hire segment. The number of brokers rose from under 50 in the late 1970s to in excess of 5,900 in 1988 (Pearce and Brown, 1988:2). Some of this growth can be explained by the increased reliance of small shippers on freight broker services. This enables the small shipper to obtain many of the advantages of the large shipper but without maintaining a large distribution department.

Another impact of deregulation was the impetus it provided for innovation. Just-in-Time operations and the associated use of electronic data interchange became strategic weapons for businesses and trucking firms. These tools gave trucking companies the means to differentiate their services and to provide improved customer service. Businesses were able to better manage inventory and to consolidate operations due to the improved service and computer interface.

The bottom line of deregulation has been the increased competition among trucking companies. As a result of the free access to markets, companies have had to provide a high level of customer service at a reasonable price. Companies have developed market niches and specialized services. Long term partnerships between trucking firms and customers have developed with benefits to both parties. With more options available to them, companies are selective in choosing a motor carrier and exercise greater leverage over those selected.

V. Findings and Analysis -- European Community

Introduction

As one can see in the United States' trucking industry, significant changes resulted from the Motor Carrier Act of 1980. The route structure, price setting, market share and concentration, and efficiency of the U.S. motor carrier industry were greatly affected. Because of these fundamental changes in the United States trucking industry, the logistics strategies of the carriers and of business in the United States shifted to adapt to this new, highly competitive environment.

Because of the resurgence of the European Community in 1992, Europe is ready to experience similar changes as those felt by the United States after the 1980 Motor Carrier Act. Like the regulated U.S. trucking industry, most of the EC-member trucking routes are highly regulated by the federal governments. The European trucking industries' price setting methods have recently begun to evolve from a collective system to a more open, competitive system. The deregulated or liberalized EC trucking industry may have an impact on the market share and concentration of the industry. With the changes bought about by EC '92, the new efficiencies of a deregulated trucking industry may reap benefits for the carriers and the shipper. Certainly logistics strategies will change.

EC Transportation Policy for 1992. According to Transport in Europe, the goal of the Single Market Act is "to make it possible in the best possible conditions for 340 million inhabitants and millions of tonnes of goods to move around the Community" (Transport in Europe, 1991:8). The EC transport policy will play a large role in attaining this goal. To meet the challenge of EC '92, the Community has established several key policies concerning transportation in the EC-member states (Transport in Europe, 1991:9):

1. Establishing effective transportation networks between member states.

2. Promoting fair competition between the various modes of transportation, and between various member states.

3. Harmonizing standards and legislation in the social, environmental and tax fields.

4. Encouraging regional balance, so the peripheral regions or disadvantage states do not remain cut off from the rest of the Community.

5. Forging links with non-Community members.

6. Developing research and investment into the Community.

According to an unpublished report from the U.S. Commerce Department, the EC has three principal objectives for achieving its 1992 policy regarding road transportation (Sousane, undated:4):

1. The phasing out of road transport quotas.

2. Elimination of cabotage restrictions which will allow non-resident carriers to freely operate in the territory of other EC member states for the transport of goods by road.

3. The elimination of delays caused at the border-crossings.

The Growth of the EC Road Transport. "The growth of road freight transport in the 1970s and 1980s has been spectacular" (Competition Policy, 1990:7). In fact, as the traffic of goods have grown, so has the market share of the trucking industry over other modes of transportation. Table 5 demonstrates road haulage has increased its market share of the goods transported at the expense of the other surface modes of transportation.

TABLE 5

EC GOODS TRANSPORTED
BY MODE OF SURFACE TRANSPORTATION
(BILLIONS OF TONS PER KM PERCENTAGE)

	1984	1989
Road	69.1%	76.5%
Rail	18.4%	14.4%
Inland Waterways	12.5%	9.1%

(Transport in Europe, 1991:7)

"The Commission projects that road haulage is set to grow by 60 percent by the year 2000" (The EC Builds, 1991:1). This percentage seems reasonable when one considers that from 1983 to 1990, the amount of intra-EC road transported goods (per ton - kilometers) has increased 115 percent (92/80). National road traffic has increased by 68.8 percent (287/417) during the same time period. Table 6 and Figure 4 show the amount of growth in national and international Community traffic.

TABLE 6

NATIONAL AND INTERNATIONAL INTRA-COMMUNITY TRAFFIC 1983-90 (BILLIONS TONS-KM)

	1983	1984	1985	1986[1]	1987	1988	1989	1990
National Traffic	417	427	435	538	571	615	664	704
International Intra-EC	80	85	88	114	125	141	158	172
Total	497	512	523	652	696	756	822	876

[1] EC Members switched from 10 to 12 members.

(Road Freight, 1991:25-25)

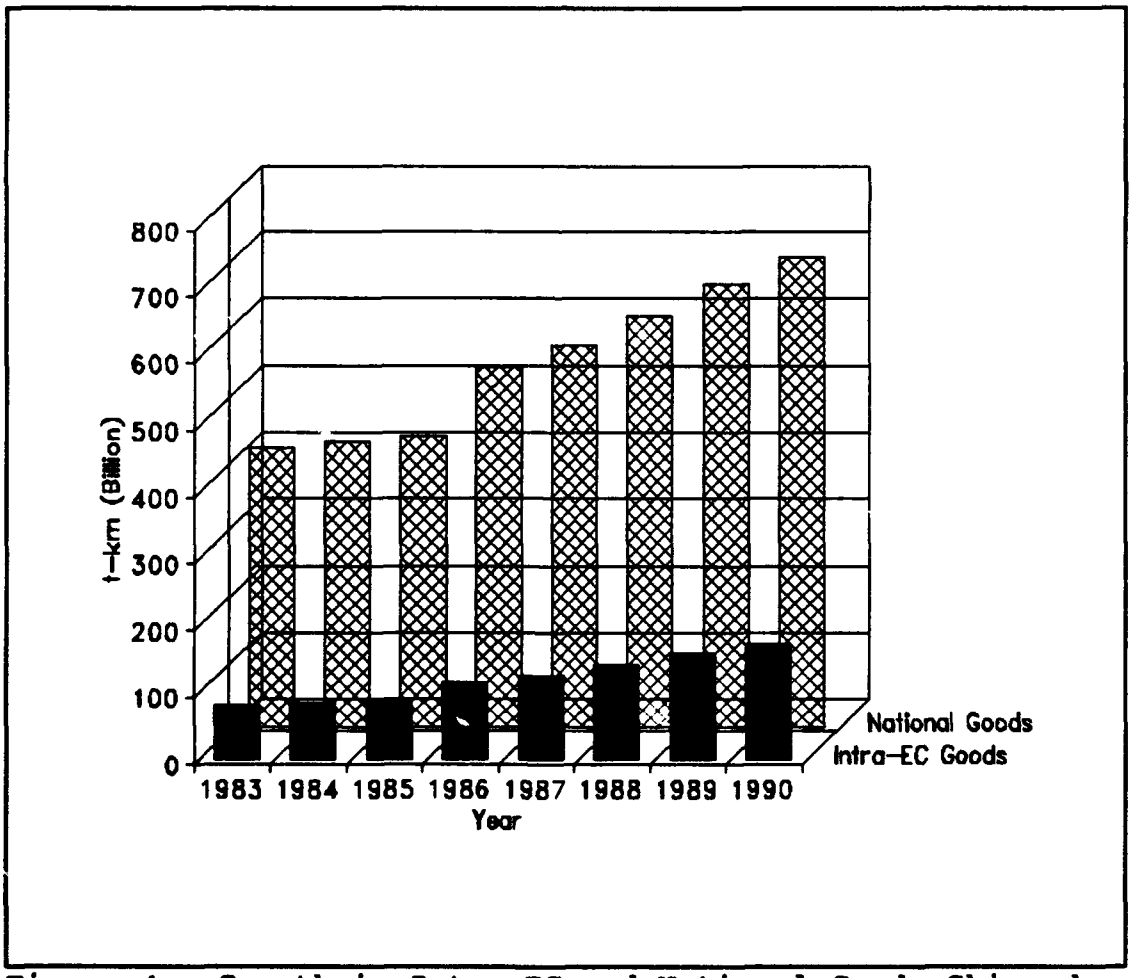

Figure 4. Growth in Intra-EC and National Goods Shipped From 1983 to 1990. (Road Freight, 1991:25-25)

Table 7 provides a snapshot look of the intra-EC tonnage transported by individual states to other EC-member nations.

TABLE 7

ROAD TRANSPORT IN 1985
(IN THOUSANDS OF METRIC TONS)

From/To	B	F	I	NL	FRG
Belgium/Luxembourg		14,131		18,081	8,147
France	10,684		3,254		11,577
Italy		2,796			2,876
Netherlands	10,535	4,051			16,640
West Germany	8,390	9,349	2,792	17,945	

(Tuninga, 1989:11)

Quantitative Restrictions of Routes -- Quotas

According to Panorama, a European industrial survey book, "the market for transport of goods by road is organized by a national regulatory framework, Community measures, and bilateral agreements between member states" (Road Freight, 1991:25-24). One such regulatory bilateral agreement has been to limit the number of motor carriers operating between EC states. This limitation is enforced by a quota system of discriminatory permits (national licenses) allocated to motor carriers to haul cargo in a foreign country. Not only did the quota system limit who could carry cargo between EC member states, but it also limited the number of trips a motor carrier's truck could take (The

EC Builds, 1991:1). Quotas are hard to obtain and sometimes illegally procured. "The cost of permits is high, acquired on the 'black market' -- and can represent one-fifth to one-fourth the cost of a carrier being in the business" (Tuerks and Zubrod: 1989:36). There are two types of quota systems involving licenses in the EC: (1) bilateral licenses negotiated by each country, and (2) Community licenses granted by the Community.

Bilateral Licenses. The bilateral license quota system has acted as a non-tariff barrier to trade. "They [quotas] are the means by which some member states seek to reserve the bulk of their lorry-borne exports to their own national haulers" (Road Transport, 1988:1). These quotas provide a set number of permits each "valid for only one journey between the two member states concerned" (Road Transport, 1988:4). The bilateral quotas are negotiated in Brussels. Every year representatives of the Ministers of Transport from each EC-member state meet to renegotiate motor carrier quotas or national licenses. As of 1988 there were 66 different bilateral agreements among the 12 EC members, some of which offer free access for international trucking.

Market Structure of the Route Quota System in 1988. According to a EC memo, the structure of the route quota system for the intra-Community market is as follows:

a. 54 percent of the road traffic is subject to bilateral quotas. These quotas are valid for one year.

b. 16 percent of the traffic is governed by Community quotas (discussed later).

c. 10 percent of the traffic is routed over free zones not regulated by national licenses.

d. The remaining 20 percent are privately-owned, however, the truck must return empty from a delivery (Road Transport, 1988:2).

Britain and the Netherlands do not impose the regulation of national licenses for motor carriers. On the other extreme is Germany, which requires every carrier entering its borders to have a permit license (Road Transport, 1988:2). Therefore, a British truck carrying goods to Luxembourg would need permits to travel through either France or Germany, or transit through Belgium.

> Countries like Denmark, Greece, Portugal and Ireland, with serious transit problems, need access to go through other Community countries more than those countries need access to them. (Road Transport, 1988:4)

Countries that are located on the peripheral borders of the EC may have less negotiating power than other EC countries (Road Transport, 1988:4). Table 8 displays the number of quotas between each EC country.

Table 8 also enumerates where possible discriminatory route authorizations, which are bilaterally negotiated by EC-member states, may occur. To understand this table, in 1986, France provided Germany with 270,000 quotas, while Germany provided France with 260,000 quotas. A larger discrepancy exists between France and Italy. Italy granted 165,000 licenses for French trucks, while France granted Italy with only 117,000 licenses.

TABLE 8

BILATERAL QUOTAS
NUMBER OF JOURNEYS (000s)
1986

T O ↓ / From →	Gm	Fr	Ir	It	Bg	Sp	Po	Dm	Gr	UK	NL	L
Gm		270	3.4	145	340	22.5	4.3	.59	30	23	744	F
Fr	260		5.3	165	315	79.5	12	11.5	4.3	90	F	F
Ir	3.4	5.3		1.6	5	?	?	.3	2	22.5	F	F
It	91	117	1.6		?	9.2	2.4	3.5	12	18	F	F
Bg	320	315	5	22		8.5	2.2	7.5	1.5	F	F	F
Sp	23	80	F	10	8.5		17	.65	F	8.58	8.5	2
Po	1.1	F	F	2.4	2.2	11		.25	F	2.4	2.4	?
Dm	3	11.5	?	3.5	7.5	.65	.25		F	F	F	F
Gr	30	4.3	2	12	1.5	F	F	F		F	F	F
UK	23	90	22.5	18	F	8.56	.3	F	F		F	F
NL	744	76.75	F	F	F	8.5	2.4	F	F	F		F
Lx	6.5	6.9	F	F	F	1.5	.07	F	F	F	F	

Key: Gm: Germany; Fr: France; Ir: Ireland;
It: Italy; Bg: Belgium; Sp: Spain;
Po: Portugal; Dm: Denmark; Gr: Greece;
UK: United Kingdom; NL: Netherlands:
Lx: Luxembourg; F: Free Access;
?: Unavailable or unknown.

(Road Transport, 1988:5)

Community Licenses. Since 1963, the Community has also granted licenses under a quota system to allow motor carriers to operate freely throughout EC-member states.

However, not enough quotas exist to meet demand (Road Transport, 1988:4).

> The [Community] quota number represents the number of licenses available for use at any one time; after one journey has been completed, the license becomes available for the operator to undertake another journey. (Road Transport, 1988:4)

The Community licenses are applicable to loaded and unloaded trucks for a single journey.

The Community quota system was established to act as a transition between the older bilateral licenses and the free open borders of EC '92. The Commission established yearly limits on the number of licenses it will offer, however, the Commission will increase that number every year. In 1989, the number of Community licenses increased by 40 percent (6868/17153) over 1988. Table 9 demonstrates this increase

TABLE 9

COMMUNITY AUTHORIZATIONS FOR LICENSES: 1988 AND 1989

Country	1988	1989
Belgium	1,488	2,084
Denmark	1,444	2,022
Germany	2,374	3,324
Greece	658	922
Spain	1,543	2,161
France	2,018	2,826
Ireland	671	940
Italy	2,022	2,831
Luxembourg	693	971
Netherlands	2,104	2,946
Portugal	873	1,223
United Kingdom	1,265	1,771
Totals	17,153	24,021

(Road Transport, 1988:8)

in Community licenses from 1988 to 1989. The Community has allowed this quota increase to help eliminate the discriminatory practices of the bilateral quota system (Road Transport, 1988:4).

The directive which regulates Community licenses allows for decreases in the numbers of licenses granted if the increases lead to carrier failures or increased unemployment in the transportation sector (Tuninga, 1989:11). When the Commission decides to change the number of Community quotas, it will submit a proposal to the Community Council of Ministers. This proposal will be accompanied by "a report on the effects of previous increases including the allocation of the Community quota" (Road Transport, 1988:6).

> Should the growth in road haulage capacity between Member States subject to a Community or bilateral quota prove to be insufficient in relation to the growth in demand for haulage, the Commission will decide on an appropriate increase in the Community quota, over and above the annual increase. (Road Transport, 1988:10)

The Future. What does the future hold? According to a EC Memo 82/88, dated 27 May 1988, the Community and bilateral quotas of EC member states and quotas for non-member countries will be eliminated for EC motor carriers (Road Transport, 1988:5). In January 1993, all quotas will be eliminated, and authorizations to enter the market will be based on qualitative criteria (Road Freight, 1991:25-28). This qualitative criteria is based on the ability of the carrier to support the customer and on the driving record of

the transport operator (Sousane, undated:7). However, this elimination of quotas for licenses does not seem realistic, since in September 1991, the Commission proposed that the Community licenses would be valid for up to six years. However, the carrier's qualifications would be evaluated every three years. This proposed regulation would also end the required limit on road trips (Tucker and Whyte, 1991:12).

Summary. Like the formerly regulated U.S. market, the EC-member trucking industry also has government controlled access to intra-EC routes. These controls were enforced by bilateral quotas or licenses negotiated between the member states. Since the number of bilateral quotas are limited, the Community has introduced an additional quota system of allocating licenses called Community Licenses. These community licenses allow the carrier to operate freely throughout the EC-member states. However, Community licenses are also limited. In fact the both quotas system are so tightly regulated and hard to obtain that a "black market" has developed for quotas (Tuerks and Zubrod, 1989:36).

Cabotage in the European Trucking Market

According to the United States Department of Commerce, current EC restrictions on cabotage limit the authority for non-residents of one member state to provide transport services involving pick-up and delivery in another member

state (The EC Builds, 1991:2). Easing these restrictions offers both positive and negative connotations depending on your perspective. For example, cabotage is positive for Greek truck carriers, because it provides access for them as non-residents into a tightly regulated German trucking market. For the German trucking companies, cabotage is negative because cheaper Greek labor may undercut the prices offered by the national trucking firms.

Background on Cabotage. As discussed earlier, the Treaty of Rome in 1957 set out to create a market with the free movement of goods. Article 75 of the Treaty of Rome established the necessity under which non-resident carriers may operate transport services in an EC member state (Gubbins and Hancox, 1989:16). Although Article 75 was initially established in May 1967, the Council of Ministers failed to accept its conditions.

In the late 1970s the European motor carrier industry, as well as other modes of transportation, experienced poor growth rates and a uncertain economic outlook (Gubbins and Hancox, 1989:17). Because of this uncertain economic outlook and the higher prices for oil, labor, and equipment, the Commission of the European Communities looked for ways to improve the motor carrier industry. One way to improve the motor carrier industry was to increase the efficiency of the carriers. "In a survey carried out in 1986, it was found that 30 percent of the hire-and-reward [contract carriers] lorries crossing the borders of Germany were

traveling empty" (A More Efficient Use, 1988:1). It was also estimated that if the truck belonged to a manufacturing company, there was a 50-50 chance the truck would be empty (A More Efficient Use, 1988:1).

Although the percentage of empty trucks may vary from country to country, the states with the more restrictive regulations (like Germany) had a higher proportion. The problems the Europeans were facing were the same as those faced in the United States before the Toto decision of 1978. The Europeans, through cabotage, were limiting the backhaul capability of for-hire carriers.

In 1982, the Commission of the European Communities decided a limited version of cabotage might fix the poor economic outlook of the industry and increase the efficiency of its carriers. However, the Commission stressed this was not an affirmation of freedom for non-resident carriers. "Its specific purpose was to permit carriers, during the execution of an international journey, to carry out one or two non-domestic journeys in the same vehicle" (Gubbins and Hancox, 1989:17). For example, a French carrier could travel to Germany and drop off a load, then perform a maximum of two trips within German borders before returning to France. The Commission hoped to use this restricted version of cabotage as a push towards implementing Article 75. The 1982 proposal to establish a partial cabotage failed.

In 1985, the Commission of the European Communities again pushed for relaxation of the inefficient permit and quota system. The 1985 proposal was similar to the 1982 proposal except, this new proposal "emphasized the necessity to remove all restrictions concerning the nationality of the person providing the service when allowing freedom to provide services" (Gubbins and Hancox, 1989:17).

The 1985 proposal outlined that road cabotage would be permitted by 1988 and that "any road carrier of a member state would be able to provide national road transport services in any other member state" (Gubbins and Hancox, 1989:17). The 1985 proposal offered the EC two types of cabotage, consecutive and general cabotage. According to Gubbins and Hancox, consecutive cabotage allowed non-resident international carriers to handle two or less cabotage operations, without qualitative restrictions (quotas) on the backhaul portion of their international journey (Gubbins and Hancox, 1989:18). Consecutive cabotage would increase efficiency of the carrier by improving the utilization of trucks. General cabotage offered unlimited movements of international backhaul journeys. However, the carrier must establish a fictitious company in the member state, and the carriers must be regulated by the laws of the EC-member state where the services are provided (Gubbins and Hancox, 1989:18).

Like the 1982 attempt to pass cabotage legislation, the 1985 resolution failed. Domestic carriers, especially

in West Germany, felt threatened by the competition of carriers with lower rates (Greece for example) working in their trucking market.

> Cabotage gives Germany the jitters. This is the fear in the highly regulated German transport market. High profits and good prosperity have been the traits of German haulers, for many years the envy of their other European counterparts. (Gubbins and Hancox, 1989:22)

Worker trade unions were critical of cabotage and the threat of losing jobs. In the United Kingdom, where the trucking industry has had a free domestic freight market since 1968, the Transport and General Workers Union campaigned with "Sabotage Cabotage" to defeat the proposal (Gubbins and Hancox, 1989:23). There are other factors which impact the ability to implement cabotage. According to Gubbins and Hancox these revolve around:

a. Language and cultural barriers: differences in language and cultural interpretations can results in misunderstandings.

b. Currency fluctuations: For example carriers operating in the UK are expected to accept Sterling as a payment. With the currency fluctuations they are risking higher or lower returns upon conversion.

c. Nationalism (Gubbins and Hancox, 1989:23).

The push for a cabotage proposal was not to become a major issue again until 1989. From the time cabotage was actively pursued (mid 1982) until 1989, not only did the national traffic for carriers increase, but the growth of intra-EC carrier traffic increased significantly as shown in Table 6 and Figure 4. Such growth provides a fertile ground for cabotage to prosper.

Revival of Cabotage. With the impressive increase in intra-EC movement of road-hauled cargo, the Community in 1988 adopted measures to loosen two major areas of the restrictive transportation policies. Directives II-84 and II-86 dealt specifically with transport licenses and restrictive cabotage, respectively (Tuninga, 1989:11). "The purpose of the II-84 directive is to create a transport market without quantitative restrictions [quotas] by 1992" (Tuninga, 1989:11). Basically, II-84 meant the trucking border crossing quotas would be increased to allow for freer border access for carriers. Additionally, the Commission adopted Directive II-86 allowing nonresidents of one member state to provide transport services in another member state. However, cabotage will only be allowed for international service, and the carrier will have to comply with local regulations (Tuninga, 1989:11). With these directives, the EC was attempting to recoup the efficiency of their trucking fleets.

> This practice will increase transportation and distribution efficiency significantly in the EC. It was estimated that previously, up to 35 percent of the trucks that crossed into the border of one EC country returned to their home base empty. (The EC Builds, 1991:2)

While experts predicted that cabotage would significantly increase transportation and distribution efficiency (The EC Builds, 1991:2), the European Commission established another quota system for cabotage licenses. "On 1 July 1990, they [European Commission] established an

annual quota for cabotage licenses, initially set a 15,000 licenses valid for two months" (Transport in Europe, 1991:14).

Each successive year the cabotage quotas will be increased by 10 percent or negotiated in Brussels, Belgium, upon voting of the member states. In 1991, the Commission in Brussels established a quota size of 16,834 cabotage licenses, ranging from 2,387 for Germany to 643 for Greece (Parry, 1991:78). These quotas for cabotage licenses are insufficient. According to the International Road Transport Union, there are 400,000 potential applicants, although 80 percent are carriers with one truck (Parry, 1991:78).

What does the future hold with cabotage? It is proposed that the Council of Ministers establish a non-quota cabotage system by 1 January 1993 (Transport in Europe, 1991:14). John Farrant, European development director of the United Kingdom's National Freight Consortium, believes the quota system has been "a very small opening of the door" to an open haulage market; and "it was designed to be an opening gambit, but it hasn't yet had wide-ranging effects" (Parry, 1991:78). On the other hand, Patrick Kennett, a European commercial transport specialist with the UK's Economist Intelligence Unit, expects "modest initial growth for cabotage as some countries, particularly Germany, cling to protectionism" (Parry, 1991:78). Others are more optimistic. J. Michael Farren, U.S. Under Secretary for International Trade, predicts a 50 percent decrease in the

cost of distribution once a non-quota cabotage system is implemented (Farren, 1991:6).

Allowing free access for cabotage should increase more road transport volume, increase third-country carrier operations, and help establish foreign carriers in the EC (Road Freight, 1991:25-29). Certainly increased cooperation between the EC-members and foreign carriers will occur.

Summary. Non-residents of one EC-member state are limited from operating trucking services within the another EC-member state without a cabotage authorization. The Community grants cabotage authorization, however, these licenses are limited to less than 20,000 authorizations with 400,000 potential applicants (Parry, 1991:78). This cabotage route limitation has impacted on the efficiency of backhaul in the trucking industry within the EC-member states.

> This inefficiency is similar to the backhaul restriction prior to deregulation in the U.S. Under a proposed EC '92 directive, vehicle operators would be able to obtain a guarantee waiver to pass through other countries, similar to the interstate transit privileges of U.S. operators. (Cooper and others, 1990:35)

Customs and The Single Administrative Document

To create an open market, current barriers preventing the free flow of goods and services are being torn down (Johnson, 1989:30). On 1 January 1988, a Single Administrative Document (SAD) replaced a myriad of customs documentation within the EC that truckers needed to cross

international boundaries. This new SAD documentation eliminated nearly 200 border crossing documents previously used throughout the EC member states (Sousane, undated:4).

Previous to the SAD, truckers had to present documentation at each border stop. Each country had its own requirements for documentation procedures and quotas on how many trucks could cross the borders (Tuerks and Zubrod, 1989:35). It was not uncommon for a truck driver to deal with 35 pages of documents for each country in its local language (Cooper and others, 1990:34). This put a significant burden on documentation preparation and training of personnel for the shipper. Freight forwarders, who assisted shippers in preparing and consolidating shipments (usually for cross border shipments), thrived in this high bulk documentation environment.

Not only was the bulk of documents a problem for carriers, but the time spent processing through a border crossing was enormous. A EC-member carrier was delayed an average of 80 minutes at each national frontier for processing customs documentation (Johnson, 1989:31). "Roughly 35 to 45 percent of transit time of an average shipment is 'lost' at national borders waiting for customs clearance, document verification, and vehicle and payload inspection" (Tuerks and Zubrod, 1989:32). According to Cooper and others, "a trip from Rome to Antwerp could have taken 100 hours, whereas a trip from Tucson to Chicago could take only 33 hours" (Cooper and others, 1990:34). The

European States required lengthy inspections and customs documentation for statistical information and taxation.

The SAD document contains over 50 pieces of information, a reduction from the previous 130 items collected by EC-member states prior to the SAD directive (Sousane, undated:5). The SAD document has reduced the required documentation to three pages and is accepted EC-wide.

Reducing Border Crossing Inefficiencies. Three other significant directives implemented at the same time as the SAD were to help decrease the time and cost of crossing EC-member state boundaries. These were:

a. L157: Simplification of community transit procedures and adoption of customs presentation charges.

b. L341: Elimination of customs formalities, introduction of common border posts (partially adopted).

c. L179: Community Export and Import declaration forms (Cooper and others, 1990:34).

The directive with potentially the biggest impact is the elimination of customs formalities and introduction of common border posts (directive partially adopted). This directive permits custom officials from one EC-member state to legally act as a representative of an adjoining EC-member state (Sousane, undated:5). This customs check would only be for one border crossing and be accomplished only upon entering a EC-member state (Cooper and others, 1990:35).

Although the original directive concerning the SAD applied only to intra-Community trade, these directives were

expanded to non-Community produced goods and to goods transiting the Community (Sousane, undated:4). The London accounting firm of Ernst and Whinney estimates the elimination of delays will result in a cost savings (reduction) of nearly $800 million in international, intra-EC trucking (Johnson, 1989:31). U.S. companies who operated in Europe used to complained that documentation added 3 to 5 percent of the total cost of goods sold (Farren, 1991:6-7). "The cost for documentation for border crossings can amount to $200 to $300 per invoice" (Tuerks and Zubrod, 1989:32).

> Now with the introduction of EC-wide transport licensing and unification of transport documentation, companies doing cross-border business in the EC can expect a 50 percent decrease in distribution cost by 1992. (Farren, 1991:7)

According to the U.S. Commerce Department, the removal of border controls is the final consideration for the liberalization of the road haulage service (The EC Builds, 1991:2). Periodic checks are eliminating mandatory stops at customs posts. "After January 1, 1993, the SAD will be eliminated within the EC so trucks will only have to stop at borders for checks on such things as illegal immigration" (The EC Builds, 1991:2). For statistical purposes, trucks will report the value and origin of goods at their destination.

What are the transportation benefits for the SAD and removal of border control? The introduction of the SAD and removal of border controls will clearly have an impact on

the price and service of delivering goods to the customer. EC officials state it is a realistic goal that border checks will be removed by 1993 (The EC Builds, 1991:2). The cost to ship goods across national borders will certainly decrease. The time required to ship the item to the customer will certainly decrease. Time and place utility with less expensive and more common goods will certainly mean a differentiation of goods in the future.

According to Cooper and others, production and distribution centers are relocating in anticipation of cheaper access to raw materials and easier access to cross-border markets (Cooper and others, 1990:40). Also, manufacturing plants are relocating to take advantage of lower labor cost in other countries. For example AT&T is establishing a joint venture with Spain's Telefonica, to manufacture communication equipment of which 85 percent of the production will be sold to the EC (Cooper and others, 1990:40).

Not only are production centers being relocated but the port of entry for importing goods into the EC may change. It is generally rumored that the military shipping center at Bremerhaven water port in Germany is closing its U.S. military operation to prepare for EC '92 expansions (Monismith, 1992).

> It is generally assumed that Rotterdam will maintain its dominance as a port, currently accounting for approximately 35 percent of all imports. For reaching the general European market, Holland is certainly well prepared with

> equipment. However, if subassembly is to occur in Spain or elsewhere, another entry port would be better suited. (Cooper and others, 1990:40)

Freight Brokers. Freight forwarders and customs brokers, who thrived in a high bulk documentation environment, may have to find other services they can provide their customers other than customs documentation preparation. Many of the larger freight forwarders are expanding their services to include warehousing and intermodal transportation equipment (Cooper and others, 1990:40). However, not all the freight forwarders are having an easy time converting to this new transportation environment. "It is estimated that more than half of the world's 36,000 freight forwarders are in Europe and more than half of them are for sale" (Cooper and others, 1990:40).

Summary. Until January 1988, European truckers faced a myriad of border crossing documentation imposed by the EC-member states similar to the individual state requirements in the U.S. The Single Administrative Document (SAD) eliminated nearly 200 documents used in intra-EC haulage. Prior to the SAD, "transits of Europe were made at the average of 20 miles per hour" (Brandt, 1991:5). The SAD should increase the efficiencies of the EC-member trucking agency. Removing customs and tariffs requirements will not only speed up road transport, but will also increase efficiencies, and allow new logistic strategies to evolve.

Price Setting in the European Trucking Industry

With few exceptions, motor carrier transportation within and among European nations has been highly regulated by the individual EC member states. Not only are there controls on available routes, quotas, and the ability to transit borders, but fiscal controls also exist which have a major impact on the industry.

In the 1950s, many European governments turned to rate controls on their domestic trucking industries to protect the declining rail transport markets which were already heavily subsidized.

> In much of the rest of the world, regulation of the motor transport developed for similar reasons as in the United States. In countries where the railroad system was owned by the government, governments extended regulation of trucking in order to protect their investment and the earnings of the existing railroads. To this day the German government has continued some of the tightest regulation of motor carriers in order to prevent the diversion of traffic from the money-losing railroads to motor carriers. (Moore, 1988:2)

Rather than allow free market competition to prevail, restrictions were placed on road haulage. Under these restrictions, "road freight transport prices are determined by the state (after consultation with the road freight organizations) in the forms of fixed tariffs, bracket tariffs or minimum tariffs" (Alexiadis, 1988:13). As an example, "in France, long-distance transport is subject to a compulsory bracket-rate system of pricing" (Violland, 1985:41). In the Netherlands, tariff regulations establish the maximum prices to be charged for national haulage

(Gubbins and Hancox, 1989:22). Germany's governing trucking body, the Nundesanstalt fur den Guiterfenverkehr, determines the rate structure for German domestic shipments (Gubbins and Hancox, 1989:22).

With different governing bodies and different rate structures, a wide variation in pricing existed in the domestic European freight markets. In a survey conducted by Moore, "the rate per ton-mile in 1973 was over 50 percent higher in West Germany than it was in any other European country" (Moore, 1976:128). Of the countries in the survey, only West Germany had controls on both maximum and minimum freight rates (Moore, 1976:122). In 1971, complete deregulation of the domestic British trucking industry had occurred which led to a reduction in rates charged for freight haulage. "In 1970-71, freight rates in West Germany were 25 percent above those in Great Britain" (Moore, 1976:128). Table 10 gives a comparison of freight rates as compiled by Moore.

TABLE 10
1973 COMPARISON OF FREIGHT RATES
FOR ONE SHIPPER
(U.S. CENTS PER LONG TON PER MILE)

Country	Rate
Great Britain	6.6
West Germany	10.1
Belgium	4.5
Netherlands	5.7
Sweden	5.0
United States	9.8

(Moore, 1976:129)

Even as many national motor carriers were regulated, international movement also faced price restrictions. "Up to 31 December 1989, the prices for the transport of goods by road between Member States were fixed by a Council Regulation" (Competition Policy, 1990:38). In 1988, the Commission submitted a draft (later approved by the Council) which established complete pricing freedom as of 1 January 1990 (Competition Policy, 1990:38). However, this pricing freedom is complicated by an abundance of tariffs and value added taxes.

For example, "Council Regulation (EEC) No. 1174/68 of 30 July 1968, introduced a compulsory forked tariffs system with a 23 percent spread for carriage of goods by road between member states" (Alexiadis, 1988:15). Not only is a compulsory tariff levied, but each nation has a myriad of additional taxes and tariffs. ECMT Round Table 71 discusses numerous charges such as trade taxes, kilometer taxes, and many more which differ from nation to nation.

Rate Harmonization. The vast differences among countries poses difficulties for the international shipper. John Farrant, European development director of the UK's National Freight Consortium (NFC), feels the problem "is conforming to national regulations and cutting through domestic tariffs and value-added tax" (Parry, 1991:78).

Attempts are being made to remedy some of the discrepancies between countries. Two directives of the Council of Ministers, Directives I-84 and II-86, will have

an impact on both the prices and costs of transport services (Tuninga, 1989:12). These and other harmonization efforts attempt to eliminate the distortions in competition caused by the current systems of taxation and charges (Summary of the Discussion, 1986:64).

According to Bob Straetz, International Trade Specialist with the U.S. Department of Commerce Office of EC Affairs, although some changes have already taken place, others proposals are currently stalled. As for rates to charge customers, trucking firms are fully deregulated and can charge whatever the market will bear (Straetz, 1992). Registration fees, taxes on fuel, tolls, and other charges are still in contention. Companies in countries with higher tax rates, such as Germany, will be unable to compete with those registered in countries with lower tax rates. This would not only result in a loss of revenue to particular firms but to nations as well (Straetz, 1992).

If the liberalization and harmonization anticipated with the Single Market Act occur as planned, it is "likely to lead to a restructuring of the transportation industry as a result of increased competition" (Tuninga, 1989:12). With the increase in competition and improvement in operations foreseen, expectations are for a "reduction in shipping costs to customers estimated at 10 to 15 percent" (The EC Builds, 1991:1). Some transportation experts predict the deregulation to "force average fares down by around 20%" (Johnson, 1989:33).

The increase in cabotage will create some of this reduction by enabling haulers from countries whose rates are low, such as Greece, to operate where rates are high, such as Germany (Gubbins and Hancox, 1989:18). With the Single Administrative Document and the removal of border controls, "costs of transporting across borders should also decrease as labor time and clerical time is saved" (Cooper and others, 1990:39). However, like the intrastate trucking regulation in the United States, the national governments within the EC may not fully deregulate their trucking industries.

Summary. Like the United States prices in the EC were established to protect the government subsidized railroads and railroad earnings (Moore, 1988:2). Prices in the EC domestic trucking industry are controlled by each individual country. Similar to the manner in which rate bureaus controlled prices in the United States, in the EC "road freight prices are determined by the state after consultation with the road freight organizations" (Alexiadis, 1988:13). This collective price setting did not allow the European trucking industry to operate in a free or highly competitive market. In intra-EC trade since July 1990, the EC-member states' trucking firms have been able to charge "whatever the market will bear" (Straetz, 1992). This free market price setting method may make the EC trucking industry more competitive.

European Market Share and Industry Concentration

"There is a suspicion that market regulation has contributed to concentration in the transport industry" (Baum, 1983:54). Using the German market to exemplify this feeling, Baum cites:

> In road haulage the total number of firms fell by 20 percent over the period 1960 to 1978. The number of small firms (with only one or two authorizations) fell most. The biggest growth was in the big firms (with 11 or more concessions) (Baum, 1983:55).

Moore agrees "regulation appears to have affected the size structure of firms" (Moore, 1976:131). "Regulation... and market cooperative arrangements...undoubtably permit the existence of smaller firms than would exist otherwise" (Moore, 1976:132). The minimum size firm which is prospering varies from country to country. The transport industries in the least regulated nations, such as Great Britain, seem to foster larger firms than in the most regulated countries, such as Germany (Moore, 1976:132).

Concentration and size are important factors for the transport market, but actual market share provides another important indicator. The United Kingdom and Germany account for over 51 percent of all domestic road haulage in the EC. Table 11 shows the market share of various EC-member states.

With the elimination of barriers to open the transportation of goods across national boundaries, European companies must begin to view their market with a broader perspective. However, "to date, no commercial enterprise

TABLE 11

WEIGHT OF EACH MEMBER STATE
IN THE NATIONAL DOMESTIC MARKET
(BASED ON TON/KM FOR HIRE AND REWARD)

Country	Percent	Country	Percent
West Germany	31.0	Portugal	2.7
United Kingdom	20.9	Denmark	2.6
France	17.0	Greece	2.4
Spain	14.4	Ireland	1.0
Netherlands	4.5	Italy	N.A.
Belgium	3.4	Luxembourg	N.A.

(Eurostat, 1989:4)

has yet established a significant market share throughout the EC" (Thuermer, 1991:11). Currently, most leading European companies conduct the majority of their business within one or two EC-member states, and thus "cross-border volumes represent only 5 percent of the total volume of goods transported" (Thuermer, 1991:11). Of this volume, the Netherlands, Belgium, and Germany account for nearly 70 percent. Table 12 shows the market share of each nation in the intra-EC freight market.

TABLE 12

WEIGHT OF EACH MEMBER STATE
IN THE INTRA-COMMUNITY MARKET
(BASED ON TON/KM FOR HIRE AND REWARD)

Country	Percent	Country	Percent
Netherlands	27.7	Denmark	2.5
Belgium	23.4	Portugal	1.0
Germany	18.0	Ireland	0.8
France	17.5	Greece	0.5
Spain	5.7	Luxembourg	N.A.
United Kingdom	2.7	Italy	N.A.

(Eurostat, 1989:4)

Capturing a large percentage of this volume, Danzas of the Netherlands and Schenker-Rhenue of Germany are Europe's biggest cross-border operators (Parry, 1991:79). Yet they cannot rest easy with the increase in competition predicted to occur from within and from without the EC. "Others with powerful networks include Bilspedition and ASG of Sweden, Kuene & Nagel of Denmark, LEP and NFC of the UK, and Panalpina of Czechoslovakia" (Parry, 1991:79).

Although most traffic is still of a domestic nature, EC '92 should increase intra-EC movement. Estimates of intra-EC road traffic vary greatly from 5 percent (Thuermer, 1991:11) to 8.2 percent (Parry, 1991:78). Regardless, road traffic is expected to increase in the future.

> Only 8.2% of west European freight tonnage currently travels cross-border, though single market integration should push this to almost 10% by the end of 1993, with an annual increase of 2% in its share thereafter, according to Patrick Kennett, a European commercial transport specialist with the UK-based Economist Intelligence Unit. (Parry, 1991:78)

The removal of barriers to competition is expected to result in a drastic shakeup in the transport industry. "Some analysts predict the emergence of between five and 10 European super-haulers by 2000" (Parry, 1991:79). The super-haulers would treat the entire Community like a domestic market (Parry, 1991:79). EC '92 will open the Community's markets to carriers from outside the EC such as the European Free Trade Association (EFTA) and Eastern Europe. The unrestrictive barriers to entry which may be

available in the EC may provide a easy market for the super-haulers to operate.

Summary. In the EC-member states, economic concentration is hard to determine due to the lack of reliable statistics of individual trucking firms within Europe. This is in direct contrast to the trucking statistics available in the United States. Instead of evaluating the market concentration of individual firms as in the United States, economic concentration in the EC can be measured by observing the overall trucking industry and the market share held by each individual EC-member state. The Netherlands, Belgium, and Germany account for nearly 70 percent of the intra-EC road transport market. The United Kingdom and Germany account for over 51 percent of all domestic road haulage in the EC. Currently in the EC, "cross-border volumes represent only 5 percent of the total volume of goods transported" (Thuermer, 1991:11). This can be compared to the interstate transportation of the United States of 40 percent (Ettorre, 1988a:T19).

Infrastructure Changes for EC'92

> In assessing logistics strategies for post-1992 Europe, shippers must be aware that the EC's transportation infrastructure is also changing rapidly. (Lieb, 1991a:27)

With EC '92 road traffic within the EC-member states is expected to increase. Infrastructure changes must keep pace with the reorganization of logistic strategies as result of EC '92. Lack of infrastructure changes or the failure to

keep up with the increase traffic may negate the efficiencies of the newly deregulated trucking industry.

> ... traffic increases pose a potential threat to efficient highway transportation. Ironically, as the Economic Community (EC) reaches its avowed goal of creating a unified market and eliminating customs delays at the national borders, shipments between countries may fall victim instead to infrastructure roadblocks. (Cooke, 1990:101A)

There is some distress that the Community's highway infrastructure will not be able to keep up with the increase in trade growth (Lieb, 1991a:27). As trade increases for Europe because of EC '92, "then the already congested roads of northern and central Europe will be clogged by even more traffic" (Cooke, 1990:101A). Alain Rathery, principal administrator for the Conference of European Ministers of Transport, states:

> While the highways have up to this point certainly played a positive role ... they run the risk in coming years of becoming the very symbol of the strangulation of transportation. (Cooke, 1990:101A)

Since the highways move 85 percent of EC-Member freight, adequate highway capacity is critical. A recent study of road use and new road construction indicated "the volume of goods carried on community roads will grow by 5 percent each year into the early 1990s (Cooke, 1990:101A). "The increased movement of truck traffic is really running ahead of road building" (Cooke, 1990:102A).

To prepare for the new markets opened by EC '92 and to correct the problem of road volume outracing road construction, the Council of Ministers adopted a Commission

proposal for a three-year program (1990 - 1992) to improve EC infrastructure. "For the first time, it is possible to finance infrastructure with a Community interest under the European transport policy" (Transport in Europe, 1991:38). Under this three-year program, EC-member states can request money (grants) from the Commission to upgrade the country's infrastructure. In 1989, the EC granted Ireland $12 billion under a four-year infrastructure improvement program, to fix Ireland's road network (Cooke, 1990:103A). The EC has also provided money to build a major bypass to Austria's Brenner Pass, a major gateway for trucks between Germany and Italy. Once completed, the Brenner Pass transit route will be a 12.7 kilometer rail tunnel which will provide an alternative for truck traffic, since the train could act as an intermodal carrier of containers for the entire trip through Austria (Cooke, 1990:104A).

One complaint of the EC directed infrastructure program is it does not present serious concrete proposals for 1993 and beyond (Transport In Europe, 1991:40). Because of this lack of concrete guidance by the EC, nations are developing their own road infrastructure programs.

> Hobbling any attempt to correct Europe's infrastructure woes is a lack of coordination among nations where highway building and maintenance are concerned. Right now, each European nation sets its own agenda for bridge repairs and new highway constructions. (Cooke, 1990:103A)

As of January 1989, the Council of European Transport Ministers identified 35,016 kilometers of roadway designated as European Highways. Table 13 indicates the numbers of European designated highways:

TABLE 13

EUROPEAN DESIGNATED HIGHWAYS
(AS OF JANUARY 1989)

Country	Number of Kilometers
West Germany	8,670
France	6,570
Italy	6,150
Great Britain	2,980
Spain	2,177
Netherlands	1,980
Belgium	1,593
Switzerland[1]	1,390
Austria[1]	1,380
Sweden	999
Denmark	630
Portugal	235
Finland[1]	204
Luxembourg	58
Greece	N.A.
Total	35,016

Note: [1] Member of the European Free Trade Association.
N.A.: Not available.
(Cooke, 1990:103A)

National Infrastructure Changes. Concern has been expressed that the highway system will not be able to handle the economic growth of EC '92. "Several EC member countries have announced plans to substantially increase their funding of highway improvement" (Lieb, 1991a:27). "The politics of investments [for road repairs] have been mainly oriented

toward national objectives" (Cooke, 1990:103A). The problem with these national transportation objectives, could mean the transportation networks do not mesh well with the other EC-member states (Cooke, 1990:103A).

England has invested $19 billion for a 10-year modernization program. England and France have begun a bold project -- the 51-km Eurotunnel, linking the two nations together. The "Chunnel," as it is better known, is scheduled to open in late 1993, at a scheduled cost of 7.4 billion ECUs (Bruce, 1988:34).

In Western Germany, the Federal Ministry of Transport estimated that 3,400 kilometers, or 40 percent, of former West Germany's roads were "chronically congested" (Cooke, 1990:103A). In 1989, Germany estimated it lost the nation's economy $9 billion due to the approximately 25,000 traffic jams (Cooke, 1990:103A). The German government has agreed to spend $15 billion annually on transportation from 1990 to 1993; with $3.8 billion going for repairing and widening heavily travelled highways (Cooke, 1990:104A). The cost of maintaining, or constructing roads in the newly unified eastern Germany should increase these cost.

In France, the primary roads are mostly toll roads. Although the roads are crowded, the French are investing most of their infrastructure money concerning transportation into the train network (Cooke, 1990:104A). "Nearly 82 percent of France's $5.4-billion 1990 budget for surface transportation will be spent on rail improvements" (Cooke:

1990:104A). This French rail system will hook up with the Eurotunnel and a consortium of 17 European railroads (Lieb, 1991a:27). This new French rail network and rail consortium will "facilitate the cooperative movement of containers across European Borders" (Lieb, 1991a:27).

The road conditions in Spain are considered poor compared to Germany and France. The Spanish government plans to upgrade 14,700 kilometers of existing roads, and constructing 3,700 kilometers of new roads for $2.3 billion (Cooke, 1990:104A). The state owned railway company in Spain is investing $2.16 billion for infrastructure changes to rail networks operating near the Mediterranean (Cooke, 1990:104A).

Although not members of the EC, Austria and Switzerland's road conditions are worth mentioning, because the roads "represent a crucial crossroads in the movement of goods throughout Europe" (Cooke, 1990:104A). Environmental pressures of preserving the countries' Alpine surroundings have caused the two countries to discourage road shipments (Cooke, 1990:104A). Austria is trying to limit heavy trucks (a reason the EC is funding the Brenner transit route, to by-pass Austria). "As of last year [1989], for example, Austria has banned heavy trucks operating at a given decibel level from certain highways at night" (Cooke, 1990:104A).

EC-member states are funneling money into their road and rail networks. While most states appear to be using the rail networks to relieve pressure from their saturated

roadways (Transport in Europe, 1991:20), a study by the Basel-based consultants, Prognos, indicated the following about European transportation networks:

> ...even if strict environmental-protection controls were imposed on roads and the European railways received massive government support, rail shipments would never account for more than 20 percent of European surface-freight movements. ...Intermodal transport -- or combined transport, as it is called in Europe -- would probably only grow from its present 1.6 percent share to 4.3 percent share by the year 2000. (Cooke, 1990:104A)

Funding for EC Infrastructure. The infrastructure changes of the Commission and the individual states will mean increased spending. The Commission wants the users to pay the real cost of newly constructed infrastructure projects for transportation (Transport in Europe, 1991:41). "In the longer term, these cost will be clearly borne by the shipping and traveling public in the Community in the form of higher user fees" (Lieb, 1991a:28).

Summary. Since a large portion of intra-EC freight is moved by road, adequate highway capacity is critical. "The volume of goods carried on community roads will grow by 5 percent each year into the early 1990s (Cooke, 1990:101A). The EC has identified key infrastructure projects prior to EC '92. However, the lack of concrete proposals from the Commission for after 1993 has prompted the national governments to direct funding for domestic infrastructure improvements. This lack of a strategic transportation plan from the Commission may impede infrastructure compatibility

and future logistics. The funding for these infrastructure changes will come from the users.

Strategic Logistics Implications of EC '92

While most multinational companies "take a pan-European approach to logistics strategy, this is much less true of their logistics activities, which continue to be organized mainly on a national basis" (Cooper, 1990:6). However, with the sweeping changes taking place to bring Europe to a single market, companies must begin to adjust their operations to enable them to take advantage of the new challenges and opportunities which will arise. As David Schoenfeld, vice president for international marketing at Federal Express, states: "If managers fail to bring the 1992 project into their thinking today, they are making an unconscious decision not to participate *after* 1992" (L. White, 1989:32). The single market envisioned by the 1992 project will allow companies to "simplify and improve production, transport goods faster and more cheaply, streamline their organizations, and pursue a more cohesive marketing strategy" (Quickel, 1989:24).

> When it comes to who's best positioned to take advantage of and reap the benefits of the emerging Euromarket, virtually everyone agrees that at least for the short term the North Americans are in the lead. (Hall, 1992:49)

For example, the deregulation of U.S. trucking "has given American businesses several years' experience with innovative product and service concepts - experience that

their European counterparts lack" (Magee, 1989:84).

According to the United States Department of Commerce:

> U.S. companies' technology and experience in setting up just-in-time delivery services and profitable distribution centers in the U.S. market should give these firms a strong background for doing business in the EC. (The EC Builds, 1991:5)

Though this is the prevailing attitude, "the advantage is less than it seems since many American companies, too, have fragmented their European operations to cater to separate national markets" (Quickel, 1989:26). American companies developed regional "distribution and service systems in order to accommodate customs rules and prohibitions against international back haul as well as to insure the availability of inventory" (Brandt, 1991:4).

Consolidation and Inventory Reduction. However, American companies operating in Europe are beginning to look at the impact consolidating operations and applying modern logistics practices such as just-in-time delivery will have as the trade barriers are removed. For example,

> Coca-Cola, which has been part of the European scene for as long as anyone can remember, has only now set up a separate EC operating group to deal with opportunities and problems that will be unique to a single-market Europe. Motorola also recently shifted from an informal country-manager setup to a consolidated European management system. (Quickel, 1989:26)

Lieb stressed the importance of adapting to the new deregulated environment in Europe when he stated: "logistics will play a key role in determining whether American companies will remain competitive within the

European Community (EC) after 1992" (Lieb, 1991b:56). At companies such as 3M, "management recognized the need to adapt its far-flung European operations to the new reality of a single, fiercely competitive megamarket" (Murray, 1989:35). Realizing the importance of logistics to their survival, 3M established a team of experts to analyze the new deregulated environment and to decide how best to respond. Using a computer simulation model, the team has recommended to 3M top executives "how best to consolidate warehouses" (Moshavi, 1990:24) in order to implement reductions in inventory and improve transportation service. One method looked at is to "reduce dependence on country-based warehousing and consolidate distribution centers by regions" (Murray, 1989:37). By consolidating warehouses and making "inventories in one country accessible to every other European country, 3M plans to reduce its inventory levels-both raw materials and finished products-by 30 percent" (Moshavi, 1990:23).

Previously 3M, like other companies operating in Europe, was forced to maintain separate stocks of products in each country in which it operated in order to meet customer needs. "Too much inventory is held, in too many warehouses, as a consequence of the national organization of logistics" (Cooper, 1991:6). Now, however, through the removal of border crossing documentation and transportation deregulation, the Single Market Act will enable positioning

stock in the supply chain based on logistical considerations rather than on regulations.

Consolidation is part of the remodeling of logistical systems many companies are pursuing. "Companies such as Philips and Monsanto, operating in ever-more competitive markets are now committed to a radical restructuring of their inventory-holding facilities in Europe" (Cooper, 1990:6). Reduction of inventory and the number of warehouses have the potential of generating significant savings for manufacturing companies in Europe. To illustrate, in the United Kingdom, capital tied up in inventory represents almost 20 percent of the value of production output, whereas the figure for Japan is only 10.5 percent (Cooper, 1990:7). These savings may prove to have an important impact on the competitiveness of European companies.

With the ability to consolidate warehouses and to cross borders freely, European and American companies are hoping improve customer service through reduced transit time and implementing just-in-time style operations. The improvements in trucking efficiencies must occur before just-in-time service can successfully be employed.

> For instance, trucking in Europe may even become a 24-hour operation when the nighttime bans on truck travel are scheduled to be lifted in Switzerland and Austria as a result of EC '92 reforms. Similar bans are the reason it can take days now for small shipments to go by truck from Rotterdam to Frankfurt, a distance of about 150 miles. (Schultz, 1992:38)

The possibility of such drastic reductions in lead times has many logistical applications. 3M, for example, is "working with manufacturing to reduce lead time of European-sourced materials to manufacturing plants from 10 days to 24 hours relying on the daily transportation system" (Moshavi, 1990:24).

Electronic Data Interchange (EDI). Reducing the number of warehouses and the amount of inventory means improving communication also. "It is quite common to find multi-national corporations running different hardware and software combinations across Europe" (Braithwaite, 1991:285). For example, "3M France and 3M Germany may be only several hundred miles apart, but they operate in independent data processing environments" (Moshavi, 1990:23). This is totally inappropriate for the new European market. The entire logistics function "must be integrated with appropriate information bases and decision-support systems to insure that logistics operations fully support production and marketing efforts" (Brandt, 1991:14).

3M is adapting its existing systems to meet these new requirements. Its system will tie "subsidiaries with factories and warehouses so material and products can be retrieved from anywhere in Europe" (Moshavi, 1990:23). Also, 3M is looking to connect customers with its computer system through electronic data interchange. Though customers will still work with 3M branches located in their own countries, "3M sees an advantage to having its customers

on a common system--its subsidiaries will provide uniform service and project a united front for 3M in Europe" (Moshavi, 1990:23).

Industry Shakeout. Not only are companies consolidating their internal functions and positioning their operations to take advantage of the new European environment, "if deregulation in the U.S. serves as an example, mergers, even across borders, may be expected" (Cooper and others, 1990:40). By mergers, acquisitions, or developing partnerships, companies are attempting to improve their competitive position. "The handful of U.S. concerns already established on the continent and in Britain have moved quickly to create pan-European networks" (Barnard, 1991:31). As far as the new European market is concerned, Federal Express vice president for international marketing David Shoenfeld says:

> Now we are building networks in preparation for it [EC'92]... For example, rather than waiting until transportation licenses are more readily available after 1992, we purchased companies that already hold national trucking licenses. We'll not only have our facilities in place; we'll also have the systems fine-tuned. (L. White, 1989:32)

The move towards integration is not limited to U.S. firms. Many European transportation companies are looking to join with U.S. companies to safeguard their position in the post-1992 market (Barnard, 1991:31). "It is generally assumed that Rotterdam will maintain its dominance as a port, currently accounting for approximately 35 percent of all imports" (Cooper and others, 1990:40). As a result,

"Dutch carriers are positioning themselves to take advantage of a strategic import location to distribute EC-wide" (Cooper and others, 1990:38). For example, "Frans Mass, a $500 million-a-year Dutch trucker, already runs a distribution operation with Sea-Land and now is looking across the Atlantic for a second partner" (Barnard, 1991:31).

With the expected shakeout of weaker companies and the swallowing up of others, the attrition rate among companies is expected to be extremely high. Sir John Harvey-Jones, former chairman of the U.K. chemical giant Imperial Chemical Industries, predicted "within ten years, half of Europe's factories will be closed and half of its companies will disappear through sales or mergers" (Friberg, 1989:87). Yet factories are not the only expected casualties.

Many freight forwarders (brokers) and other third party services are in danger due to the reduction in customs regulations and required paperwork.

> By creating a true customs union, the many complex variations that necessitated the expertise of the customs brokers will soon disappear. Consequently, transportation companies will be more inclined to do the work themselves, and 1992 may sound the death knell for the independent customs broker. Similarly, competitive pressure to eliminate costs associated with third parties and the move towards integrated transportation management means less reliance on freight forwarders to handle documentation and consolidation of freight. (Brandt, 1991:8)

As for trucking itself, Max Etinzon, marketing director for Ultimate Europe, advises American trucking companies

looking to enter the European market to consider purchasing one of the thousands of small to medium sized transport companies currently operating in Europe (Wise Words, 1989:48). These companies with 20-50 vehicles are most likely to bear the brunt of the merger and acquisition game and to be "run off the open road" (Parry, 1991:79).

Companies are beginning to explore these possibilities and to develop new ways of conducting operations. "Both Ryder System and Consolidated Freightways, for example, are exploring new transport-services business in Europe" (Quickel, 1989:26). One option which may increase in popularity is the use of combined transport. This is due in large part to the environmental concerns over the increasing truck traffic throughout the European Community. Switzerland and Austria, for example, "with road haulage industries less than one seventh the size of Germany's, complain that they bear a heavy burden of noise and pollution" (Parry, 1991:79). Due to these environmental problems, limits are placed on trucking operations. To cope with these and other similar restrictions, "Danzas, Europe's largest road hauler, is prudently looking into future opportunities to combine road and rail transport" (Parry, 1991:79). The opening on the English Channel Tunnel connecting France and the United Kingdom offers even more possibilities for combined transportation services.

There is even a new business entity which is emerging in Europe. This is the European Economic Interest Grouping

(EEIG). The EEIG allows companies "to simplify the legal framework of their EC operations by organizing all their subsidiaries and joint ventures into a single business unit or network" (Quickel, 1989:26). These Eurocompanies may allow consolidating profits and losses across EC operations rather than on a country by country basis (Johnson, 1989:35).

Summary. Currently, the logistics strategies for the EC are based on national markets. With EC '92, carriers and producers are scrambling to meet the demands of a new international market. Such a move means consolidation of operations and reduction of inventory. These logistics strategy changes will impact the EC trucking industry. With manufacturers beginning to exert greater leverage, trucking firms have sought service innovations like Just-in-Time and EDI. The increasing competitive market is leading to the formation of partnerships and the creation of pan-European networks.

> Already European companies are starting to merge in order to cut costs, boost productivity, gain access to new markets, and form new strategic alliances in order to be better prepared to meet the challenges of 1992. (Brandt, 1991:15)

VI. Conclusions and Recommendations

> Just as American deregulation of the 1970s and '80s resulted in renewed emphasis on logistics, so, too, does deregulation in Europe portend similar opportunities for logistics in the international sphere. (Brandt, 1991:2)

The difficult challenges and numerous possibilities arising as a result of EC '92 will undoubtably alter the way logistics is viewed and conducted in the European Community. Yet those affected by the changes need only look to the experience of others for guidance. The United States' experience with regulation and deregulation provides a wealth of information for logisticians to use in preparing for and adapting to the new European environment.

This thesis looked at the United States motor carrier industry under regulation and deregulation to extrapolate the experience to the European trucking industry as it embraces liberalization and harmonization. Largely through examination of historical data, the two industries were compared in the areas of route control, pricing controls, efficiencies, and market share and concentration. Since the motor carrier industry does not operate in isolation, the logistics implications of deregulation were examined with respects to business and transportation strategies.

The following paragraphs show specific examples of change experienced in the U.S. which were found to be significant and occurring or expected to develop in the EC.

Routes and Quotas. As this research has shown, a comparison between route control in the United States and license quotas in the EC can be drawn. In the United States, regulation of routes by the ICC effectively limited the access of carriers to new markets. The elimination of route control enabled trucking firms to expand existing services and to establish new markets based on demand.

In the EC, quotas served the same purpose as route control. Countries limited the licenses available for firms wishing to transit their borders or operate within their national boundaries. The bilateral quota system provides a means for individual governments to protect their national trucking firms. Dominant EC countries were able to use their negotiating power to establish discriminatory route authorizations over other EC-member states. The Community licenses were established to relieve discriminatory route authorizations and to act as an interim measure between the quota system and the free market. Another EC '92 directive under consideration would give truckers "a guarantee waiver to pass through other countries similar to the interstate transit privileges of U.S. operators" (Cooper and others, 1990:35).

Allowed free entry to the trucking market, U.S. motor carriers were able to rationalize their route structure based on profit instead of having to comply with regulatory control. Shippers also benefitted from having a choice of carriers who could handle their business in its entirety.

For example, long haul service which formerly may have entailed switching trucks based on route control could now be handled nonstop by a single carrier.

The same effects can be predicted for the EC. As quotas are eliminated, firms will be able to freely transit borders. Again profit will serve as the guiding light for continuing operations in intra-EC shipping. Efficiency and cost considerations instead of quotas will determine the route structure of the future. Shippers should benefit from this EC route rationalization as they have in the U.S. Quotas will no longer stand in the way of road freight shipments transiting several countries.

Price Setting. This research also revealed similarities between the EC and the U.S. concerning price setting methods. The EC and the regulated United States' trucking industry both collectively set prices. Deregulation did away with collective price setting in the U.S. EC-member states eliminated collective price setting to prepare for EC '92. Both the American states and the individual EC-member states impact competitive prices through continued regulation.

Since the Motor Carrier Act of 1935, the U.S. regulated trucking industries' pricing levels were equal to and patterned after the rail industry and controlled by the ICC (Winston and other, 1990:4). With the collective price setting methods, higher prices were charged to the customer and less service provided by the carrier. U.S. deregulation

combined with new route rationalization authority, increased competition and allowed new carriers entered the market. The additional trucking capacity increased the downward pressure on prices (Violland, 1988:3). With more trucking firms to choose from, shippers were able to negotiate significantly reduced costs.

These same effects are predicted for EC haulage (Cooper and others, 1990:39). Price setting in the EC-member states' domestic market is patterned after the rail industry and was also controlled. Similar to the U.S. rate bureaus, "road freight prices are [were] determined by the state after consultation with the road freight organizations" (Alexiadis, 1988:13). This collective price setting does not allow the national trucking industries to operate in a free or highly competitive market. As a result of the Single Market Act, the EC-member states' trucking firms can now charge "whatever the market will bear" (Straetz, 1992) in intra-EC haulage. This free market price setting method will make the EC trucking industry more competitive.

The benefits of lower rates from federal deregulation in the United States have been lessened by state regulation of the trucking industry. For example, "intrastate trucking regulation in states such as Texas has caused artificially high in-state rates" (Schultz, 1991:19). In the EC, each country imposes a variety of taxes, licenses fees, and administrative charges which distorts the competitive nature of EC trucking. If the variety of taxes, quotas are

eliminated and rate harmonization is present the EC market will surpass the rate savings and efficiencies seen in the U.S.

In the EC, "as deregulation proceeds, prices will come down as they have in deregulated industries in the United States" (Wise Words, 1989:49). Relating this statement to the deregulated EC trucking environment, the producers and large shippers in the EC should expect discounted prices of 40 to 50 percent, and the small producers and shippers should receive discount prices of 10 to 20 percent. Overall cost reductions for the shippers should at least equal 20 percent for trucking services.

Backhauling, Cabotage, and Other Efficiencies. Efficiency issues are mirrored in the U.S and the EC motor carrier industries as well. U.S. regulation restricted the ability of carriers to conduct backhauling. EC controls on cabotage are "similar to the backhaul restriction prior to deregulation in the U.S." (Cooper and others, 1990:35).

In the U.S. regulatory controls led to high percentages of empty mile backhaul. This was especially true for the private carriers (30 percent) and the for-hire sector (16 percent) of the carrier industry. The Toto decision corrected much of this deficiency by allowing common and private carriers more freedom in acquiring backhaul loads. To further improve efficiency, private carriers were allowed by the Motor Carrier Act of 1980 to solicit business as a common carrier.

In the EC, non-residents of one EC-member state are limited from operating trucking services within the another EC-member state without a cabotage authorization. This cabotage route limitation has impacted on the efficiency of backhaul in the trucking industry within the EC-member states. The Community grants cabotage authorization, however, these licenses are limited to less than 25,000 authorizations (Road Transport, 1988:7). Cabotage restrictions still exist among EC-member states and the debate remains to be solved (Cooper and others, 1990:35). However, J. Michael Farren, U.S. Under Secretary for International Trade predicts a 50 percent reduction in distribution costs once a non-quota cabotage system is implemented (Farren, 1991:6). While cabotage may decrease the distribution cost, it will also increase the number of foreign carriers operating within the EC.

One of the major steps taken to implement the Single Market Act was the elimination of border controls and the related implementation of the Single Administrative Document (SAD). According to Helen L. Richardson, associate editor of *Transportation and Distribution*, "One of the greatest advantages the European Single market will have over the U.S. according to economists, is the lack of different regulations across borders" (Richardson, 1990:19). Without the problems associated with border crossings regulations and massive documentation requirements, significant savings in time and money will be achieved by transportation

companies. "The increase in efficiency...is going to be dramatic" (Wise Words, 1989:48).

Market Share and Industry Concentration. Difficulties arise when comparing the U.S. and EC market share due to the lack of definitive statistical data for the EC trucking firms. Comparison can still be made using available U.S. data and information concerning the national EC trucking industries.

Regulation in the United States brought stability to the market shares of trucking companies. Prior to deregulation, the largest twenty carriers controlled 43 percent of the nation's road freight haulage. Restrictions on market entry virtually guaranteed the rank structure was maintained.

"Deregulation in the U.S. brought significant market shakeouts" (Cooper and others, 1990:78). Concentration occurred in the LTL segment but not in the TL sector of the motor carrier industry. Evaluating the top 100 for-hire carriers provides a picture of the shakeout. Eleven of the top 25 firms in 1980 went out of business while three others fell into the bottom 75 carriers. Of the top 100 firms in 1980, 46 were no longer operating in 1990. New firms were able to enter the market and compete against existing carriers. Nine newly organized firms since 1980 were able to break in to the top 100 carriers for 1990. Overall, more than 13,000 trucking companies failed in the ten years since deregulation. "Only one fifth of the companies in business

when the dust settled had come through the deregulation intact. The rest were new enterprises" (Parry, 1991:78).

In the EC, market share has been protected through restrictions on quotas, licenses, and cabotage. The restrictions have kept European motor carriers from exploiting the intra-EC market. Carriers have confined operations mainly to domestic markets or to one or two neighboring states.

"A reproduction of the radical restructuring that followed deregulation of the U.S. transport industry in the 1980s is predicted" (Parry, 1991:78). Free market access will increase competition and subsequently force inefficient carriers out of business. This is especially true of carriers which have not identified their operating expenses and moved to control costs. Whereas regulation protected small or inefficient carriers:

> Small national companies are going to fall by the wayside, and we are going to see a very similar process, perhaps magnified many times over, of what has happened in America since the advent of deregulation. (Wise Words, 1989:48-49)

While carriers may freely enter and leave the EC motor carrier industry, predictions are for the creating of a few super-haulers which will dominate the intra-EC market. Mergers and acquisitions will increase and thus sharply decrease the number of major LTL carriers in operation. "As in the U.S., survivors of the European shake-out should prosper" (Parry, 1991:78).

Logistics Strategies. Reaction to deregulation in the United States and to proposed changes in Europe indicate motor carriers and other businesses are expecting similar results. Freed from limited trucking services in the U.S., companies were able to consolidate operations and thus reduce inventory. "Anticipating and adapting to the shipper's market is the rule to success after deregulation" (P. Byrne, 1991:3). Trucking firms and shippers together implemented innovations such as Just-in-Time and Electronic Data Interchange (EDI) to improve service and overall operations.

The changes in Europe will not only be similar to the United States but should be multiplied due to the new freedom to cross national borders. Motor carriers, now able to transit borders freely, will be able to raise on-time delivery from its present 80 percent to at least the U.S. standard of 95 percent (P. Byrne, 1991:3). "For success after 1992, the European strategy must be the same as that which has prevailed in the American domestic sector" (Brandt, 1991:8). U.S. firms which have experience in deregulated trucking should have an advantage over their European counterparts. Companies are already moving operations to consolidate inventory and beginning to utilize EDI to internationally source requirements. Mergers and partnerships between shippers and carriers will increase to provide comprehensive logistic networks.

However, one difference between the U.S. and EC markets which surfaced during this research was the effect of deregulation on freight brokers. In the United States, freight brokers increased by one hundred-fold. This growth mainly occurred to assist smaller companies which did not maintain a distribution department. On the other hand, in Europe, freight brokers proliferated due to the extreme complication of documentation required in intra-EC distribution. EC '92, through easing border crossing requirements and use of the SAD, will result in a tremendous reduction of brokers.

Infrastructure. The EC faces challenges not faced by the United States' deregulation of its trucking industry. Though many benefits will accrue to the European economy from the increased efficiencies brought about by deregulation of the trucking industry, the problems of infrastructure pose a risk of negating these benefits.

In the U.S., infrastructure developed for the purpose of interstate trade. Therefore, when the trucking industry was deregulated, the infrastructure already existed to allow carriers and shippers to fully utilize the new logistics opportunities.

In the EC, the road infrastructure developed for national trade with limited cross-border commerce. Additionally, the EC must establish a Community strategy for infrastructure needs to mesh the current individual national programs with the goals of the Community. Therefore the EC-

member states will not fully reap the benefits of a deregulated trucking environment.

Final Comments

Table 14 provides a summary comparison of the United States and the European Community trucking industries. As evidenced by this research, the United States and European experience with trucking deregulation is definitely comparable although not identical. "The 1992 program can be seen in part as an acknowledgement...of the effectiveness of the deregulation approach pioneered by the United States since the late 1970s" (Bressand, 1990:62). However, Wisse Dekker of Philips warns "not to be carried away by 'Europhoria,' the idea that everything is rosy and here we go" (Stone, 1989:93). Nevertheless, the improvements in the motor carrier industry seen in the United States as a result of deregulation can be taken as a sign of hope for similar success within the new European Community.

Recommendations for Further Research

As mentioned in Chapter III, problems with data standardization and collection within the European Community pose difficulties in qualitatively analyzing the impact of EC '92. However, as data become available after implementation of EC '92, a qualitative comparison between the United States and European motor carrier industries may be undertaken to validate the findings of this study, especially in the area of market concentration.

TABLE 14

SUMMARY COMPARISONS OF THE UNITED STATES AND EUROPEAN MOTOR CARRIER INDUSTRIES

United States		European Community	
Pre-1980 MCA	**Post-1980 MCA**	**Pre-EC 1992**	**Predicted Post-EC 1992**
ROUTES		**ROUTES**	
-Route Access Controlled by ICC.	-Route Rationalization: Routes Established by New Markets and Profits.	-National Governments Barriers to Entry.	-Free and Unlimited Access to EC Routes.
-Based on "Public Convenience and Necessity."	-Routes Based on "Public Demand or Need."	-Dictated by Border Crossing and Customs Stations.	-Elimination of Quotas.
-Government Barrier to Entry.	-Government Barrier to Entry Removed.	-Intra-EC Controlled by Quotas.	-Freedom to Perform Cabotage, Allows for Increased Backhaul Tonnage.
-Carriers Merged or Purchased Routes to Expand.	-Carriers Could Now Manage Own Business.	-Number of Trips for Each Route Limited.	-Increased Foreign Carriers Operating in Each EC-Member State.
-Routes Used as Loan Collateral or Traded for Cash.	-Carriers Given Access to All 48 Contiguous States.	-Bilateral Quotas Discriminatory.	-Increased Competition.
-Guaranteed Service to Small Towns.	-Small Towns Receiving As Good or Better Service.	-Community Licenses Insufficient for Demand.	-Individual States May Still Control Routes Within its Borders.
-Roads Traveled Under Routes Determined by ICC.	-Private Carriers Can Charge for Backhaul.	-Highly Valued: Routes Could Be Purchased on Black Market.	-Long Haul Services.
-Routes Inefficient for Carriers.	-States Still Control Interstate Routes.	-Cabotage Authorized by Licenses.	
-Common and Contract Carriers Benefited Most.		-Cabotage Licenses are in High Demand.	
-State Regulated Interstate Routes.		-Short Haul Services.	
PRICE SETTING		**PRICE SETTING**	
-Collusive Price Setting by Regional Rate Bureaus.	-Market Price Setting.	-Collective Price Setting Between National Governments and Trucking Associations.	-Market Determined Price Setting (Since 1990).
-23.6 Percent of Trucking Industry's Revenues Regulated.	-Prices Now Competitive.	-Truck Prices Initially Fixed with Railroads.	-Prices Should Drop 10 to 15 Percent.
-Price Stability for Carriers.	-Rates Charged by Carriers Decreased.	-Higher Rates for Shippers.	-Price Negotiations: Large Shippers Will Have an Advantage.
-Higher Prices for Shippers.	-Prices Decreased for Large Towns and Shippers.		-Lower Discounts for Small Shippers.
-Prices Set to Take Care of Weaker Trucking Firms.	-Prices Increased for Small Towns and Shippers.		
-ICC Veto Power Over Price Changes.			
-Possible Price Discrimination.			
-Prices Initially Set to Match Railroads.			

United States		European Community	
Pre-1980 MCA	**Post-1980 MCA**	**Pre-EC 1992**	**Predicted Post-EC 1992**
EFFICIENCY -Decreased Efficiency. -Increased Empty Backhaul. -Inefficient Carriers Supported by Industry. -Increased Nation's Cost for Transportation. -Poor On-time Delivery.	-Increased Efficiency. -Decreased Empty Backhaul. -Inefficient Carriers Forced Out of Business. -Reduced Nation's Transportation Bill by $27 Billion. -Logistics Cost Decreased by $38 Billion. -2/3rds of States Still Regulated. -State Regulation Cost $25 Billion.	**EFFICIENCY** -Decreased Efficiency Because of Quota Systems. -Time Delays at Bc ó . Crossings. -Lack of Cabotage Allowance Means More Empty Backhaul. -Bulk Documentation and Duplication of Paperwork. -Increased Cost of Intra-EC Transport.	-Increased Efficiency. -Elimination of the Border Crossing Check Points. -Cabotage Allowed: Less Empty Backhaul. -Single Administrative Document Eliminates Bulk Documentation and Duplication of Paperwork. -Increased Carrier Bankruptcies. -Decreased Intra-EC Transportation Cost. -Decreased Efficiency if the National Industries Don't Deregulate Their Trucking Industries.
MARKET SHARE AND INDUSTRY CONCENTRATION -Low Market Share and Industry Concentration as a Whole. -Stable Ranking of the Top 100 For-Hire Trucking Firms.	-Market Share and Industry Concentration Increased for the LTL Sector. -Truckload Sector of the Industry Shows No Concentration of the Market Revenues. -For-Hire Industry Market Share and Concentration Increased. -New Carriers Able to Enter into the Top 100 Trucking Firms.	**MARKET SHARE AND INDUSTRY CONCENTRATION** -No Significant Industry Market Share and Industry Concentration. -Trucking Statistics Unavailable for Adequate Comparison. -Netherlands, Germany, Belgium and France Leaders in Intra-EC Transportation Movements.	-Increased Mergers and Market Concentration. -Increased Trucking Firm Failures -Possible Concentration to a Few Mega-Carriers. -Intra-EC Road Traffic Will Increase. -Possible Multinational Trucking Firms Developing.

United States		European Community	
Pre-1980 MCA	**Post-1980 MCA**	**Pre-EC 1992**	**Predicted Post-EC 1992**
LOGISTICS IMPLICATIONS		**LOGISTICS IMPLICATIONS**	
-Private Carriers Used to Lower Cost. -Few Service Options for Private Carriers. -Low Customer Service. -Low Shipper Bargaining Power. -Few Freight Forwarders. -Firms Operated with the Services of Several Carriers. -Poor On-time Delivery.	-Private Carriers Used to Lower Costs. -More Service Options for Private Carriers. -Increased Service Innovations: Like JIT and EDI. -High Shipper Bargaining Power. -Big Increase of Freight Forwarders. -Partnerships Formed, Carriers Operated with Fewer Trucking Firms.	-Organized on a National Network. -Local Distribution -Decentralized Warehousing. -Low Customer Service. -Poor On-time Delivery: Only 80 Percent. -Firms Operated With Many Carriers, Because Not All Carriers Had Quotas. -Many Freight Forwarders or Brokers. -Companies Have Many Subsidiaries to Deal with 12 EC Nations.	-Reorganize to an International Network. -International Distribution. -Centralized Warehousing. -High levels of Customer Service. -Increased On-time deliveries: 95 Percent or Better. -Firms form Partnerships with Fewer Carriers. -Decrease in the Number of Freight Brokers. -Streamlined Organizations. -New Logistics Strategies. -Inventory Levels Decrease Due to Innovations in JIT and EDI.
		INFRASTRUCTURE	
		-Established for Domestic Markets. -Limited Planning or Lack of Priorities. -Congested Roads. -Road Traffic Running Ahead of Road Building. -Limited EC-Funding for Infrastructure Improvements.	-Build for an International Market. -Cohesive Planning and Coordination Required for Efficient Road Transport System. -Users Pay for Cost of Transportation. -Roads or Surface Will Remain Primary Transport Mode. -Environmental Concerns will Continue to be Emphasized. -Continued Congestion.

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Vita

Captain David W. Butler was born on 1 September 1959 in Roanoke Rapids, North Carolina. He graduated from Terry Sanford High School in Fayetteville, North Carolina in 1977 and attended the University of North Carolina at Wilmington, graduating cum laude with a Bachelor of Science in Business Administration in December 1981. He was a distinguished graduate of the Officer Training School at Lackland AFB, Texas in 1985. He began his first tour of duty as Chief, War Readiness Section for the 63rd Supply Squadron at Norton AFB, California and later assumed the duties of Chief, Fuels Management Branch. In 1989, he was transferred to Zweibruecken AB, Germany and served as Chief, Materiel Storage and Distribution Branch for the 26th Supply Squadron. After completing Squadron Officer's School in August 1990, he returned to Germany to become Chief, Materiel Management Branch for the 26th Supply Squadron. He entered the School of Systems and Logistics, Air Force Institute of Technology, in May 1991.

Permanent Address: 2349 Colgate Drive
Fayetteville, NC 28304

Vita

Captain Andrew P. Wilhelm was born on 30 May 1962 in Rome, New York. He graduated from Daniel J. Gross High School in Omaha, Nebraska in 1980 and attended the University of Nebraska at Lincoln, graduating with a Bachelor of Arts in History. Upon graduation in 1984, he received a reserve commission in the USAF and served his first tour at Mather AFB, CA. In 1985, he was transferred to Howard AFB, Republic of Panama. For the next three years he served as OIC, Air Passenger Terminal and OIC, Air Freight for the 6th Aerial Port Squadron. During this tour, he was selected for a regular commission. In 1988, he was transferred to Zweibruecken AB, Germany, where he served as the Chief, Transportation Combat Readiness and Resources and served as Commander, 26th Transportation Squadron. Captain Wilhelm completed Squadron Officer's School in October 1990. Upon completing his tour at Zweibruecken AB Germany, he then entered the School of Systems and Logistics, Air Force Institute of Technology, in May 1991.

Permanent Address: 4916 Dumfries Drive
Omaha, Nebraska 68157

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This study investigated the United States motor carrier industry experience with deregulation to afford a comparison with the European Community's (EC) expanded trade liberalization and harmonization program known as EC '92. Historical backgrounds were provided for the U.S. and EC trucking industries. Relevant studies in the fields of trucking deregulation and logistics were reviewed. Specifically, route control, price setting, efficiency, and market share and concentration were analyzed. Logistics strategies arising from trucking deregulation were also examined. The findings of this research indicate definite similarities between the EC and U.S. motor carrier industries. Both were heavily regulated originally to protect government subsidized railroads. Route control and quotas limited entry into the market. Price setting resulted in inflated prices. Inefficiency was caused by haulage restrictions and documentation requirements. Market concentration was stable due to lack of competition. Deregulation experience in the U.S. trucking industry was used for extrapolation in Europe. Lifting restrictions on quotas will result in heightened competition. Prices will fall as shippers exercise greater negotiating power. Eliminating restrictions on haulage will vastly improve efficiency. An industry shakeup will occur before market share and concentration stabilize.

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